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# First Annual FORTHEM Conference "FORTHEM - For the Future". 6-8 March 2024 (ONLINE). Book of Abstracts

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## General sessions:

1. Europe as a hub for inclusiveness and democratic values
2. Cultural heritage, a testimony of the past and reference book for the future
3. Physical and mental health in complex times of crisis, and economic and political instability
4. Overpopulation and overconsumption triggering hunger, resource scarcity, migration, climate change, and the pollution of the atmosphere, the soil and the oceans
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Fostering Outreach within European Regions, Transnational Higher Education and Mobility

# General session: Europe as a hub for inclusiveness and democratic values

*The conference session, "Europe as a Hub for Inclusiveness and Democratic Values", offers a dynamic exploration of Europe's pivotal role in fostering inclusiveness and upholding democratic principles. As we navigate the complexities of our rapidly changing world, this session invites participants to delve into the unique and influential position that Europe occupies on the global stage and share insights into Europe's historical commitment to democracy, human rights, and social inclusiveness. Attendees can expect in-depth discussions on various aspects, including policy frameworks, social initiatives, and the promotion of diversity.*

## Presentations:

## No longer sidelined? Football fandom, belonging and the boundaries of Europe

Jonas Biel; Vincent Reinke; Tobias Finger; Arne Niemann

*Johannes Gutenberg University in Mainz, Germany*

In times of 'polycrisis', numerous challenges threaten unity and cohesion on the European continent. European identities can play an important part in navigating these challenges and fostering solidarity. One key to understanding European identities is analysing the dynamics of inclusion and exclusion, as constructions of belonging form an essential component of individual and collective identities. Football fandom, a popular and highly Europeanised cultural phenomenon, has the potential to shape identities and constructions of belonging to Europe. Given the diverse participation in European football, we posit that the identities of football fans are more inclusive and diverse than those of non-fans. Our analysis indicates that football fans are more likely to count countries outside of what is commonly associated with Europe as European. This points to a distinct effect of cultural integration through football and underscores the role football plays in fostering a sense of unity and shared identity across the continent. The findings highlight the importance of leveraging cultural avenues to strengthen European cohesion and unity in times of uncertainty.

# Tax Relief for Working Seniors as an Incentive to Remain Professionally Active – the Case of Poland

Anna Dada

*University of Opole, Poland*

Background. The analyzed issue is important because it draws attention to the issue of tax relief offered to working seniors as one of the elements of the competitiveness of the Polish tax system. The issue makes it possible to assess the usefulness of the tax relief in terms of motivating professional activity was assessed. The work fills a gap in the adopted research area as currently there is a lack of comprehensive research on the consequences of the introduced tax relief.

Aim. The aim of the study is to assess whether the tax relief offered to working seniors provides tax and contribution benefits as an incentive for them to remain professionally active.

Results. In terms of employment contract, tax relief may be an incentive to remain economically active while giving up pension, especially for people receiving low benefits. In addition, it seems attractive to occasionally resign from the pension, e.g. in the case of a one-off significant income. Similar conclusions have been presented regarding business activity. In this respect, it seems particularly beneficial to temporarily suspend drawing benefits allowing for Article 23(10) of the Personal Income Tax.

# Cooperation between hearing sign language interpreters and their deaf clients

Laura Marie Maaß

*University of Hildesheim, Germany*

The presentation discusses a recent study conducted at the Research Centre for Easy Language at the University of Hildesheim (Germany) (Maaß, LM 2022 and in print). The aim was to find out how hearing German Sign Language Interpreters (SLI) and their deaf clients work together from the perspective of both groups. The presentation will provide an insight into the methodology and some of the results that have not yet been published. The Deaf participants reveal that more than 90 % of the medical emergencies, deaf people have to cope without a sign language interpreter. These and other remarkable results will be presented in the talk. Furthermore, I will provide insights into the negotiation of communication situations with SLI as well as into the assumptions of both sides regarding the fundamental parameters of interpretation quality. There is a deviation from the results of studies on interlingual interpreting with reference to translation and interaction parameters, which emphasizes the special nature of interpreting into German Sign Language.

# Democratic decline and challenges to Europe as a hub for inclusiveness and democratic values

Abit Hoxha[1]; Co-authors: Andreas Vatne Ellefsen[1]; Timo Szcepanska[2]

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Europe has been the epicentre of inclusiveness and democratic values such as human rights since the idea of Coal and Steel Union was formally established. The aim of this study is to find out challenges that are presented to the Europe as hub for inclusiveness and democratic values. In recent years, democracy in EU is seen with sceptic eyes (Eurobarometer Spring Survey, 2023) in an increasing trend. Europe and the EU has evolved into supra-national entity with progressive agenda that priorizes advancements in science, human development, freedoms and liberties, and services to benefit citizens. However, in the recent years, this progress appears to have been taken for granted and there has been a noticeable decline in democracy, in areas such as media freedom, free and fair elections, inclusiveness of migrants and other fields. This paper presentation looks at public narratives to identify a typology of (i) democratic decline and (ii) challenges Europe is facing to maintain its central role as a hub for inclusiveness and democratic values in the world. It intends to analyse selected European agenda setting media articles, strategic communication (including speeches from European Parliament) and electoral materials that frame the above issues as important objectives for Europe.

# Migrants Rights versus symbolic boundaries in the European context

Maite Alemany

*Lab Migration and Diversity; FORTHEM Alliance*

Background: Spain serves as a prominent gateway to Europe, with arrivals via boats "pateras" and instances of express returns ("devoluciones en caliente") being commonplace. However, immigrants often encounter significant hurdles in accessing the country through regular channels, leading some to resort to irregular entry. Access to regularization in Spain is fraught with difficulty, exacerbating the challenges faced by migrants [1]. Moreover, there exists a phenomenon of Symbolic Boundaries, delineating who is included and excluded within society [2].

Aim: This paper aims to explore the various intersecting barriers—legal, social, discriminatory, abusive, violent, and symbolic—that migrants encounter in Spain, posing a challenge to inclusiveness and democratic values in Europe.

# General session: Cultural heritage, a testimony of the past and reference book for the future

*The conference session, "Cultural Heritage: A Testimony of the Past and Reference Book for the Future," invites attendees to embark on a captivating journey through time and culture. This session will delve into the rich tapestry of our global heritage, exploring how it serves as both a testament to our history and a guidebook for our future. The speakers and experts will illuminate the significance of preserving and celebrating cultural heritage, demonstrating how cultural artifacts, traditions, and historical sites are not merely relics of the past but living repositories of wisdom, identity, and inspiration. The session expects to discuss innovative techniques and strategies employed to safeguard and restore our cultural treasures, ensuring they endure for generations to come and explore how cultural heritage can be a powerful tool for fostering international understanding, cooperation, and peace. This session promises to be a thought-provoking exploration of the profound connections between our past and future, emphasizing the enduring importance of cultural heritage in shaping our world. Join us in celebrating the diversity and resilience of our shared human legacy.*

## Presentations:

## Enhancing Cultural Heritage: Local Cultural Festivals as Spaces of Inclusion

Raluca Muresan

*Lucian Blaga University, Sibiu, Romania*

This study aims to explore the ways in which local cultural festivals can be used to achieve social and cultural inclusion. For data collecting we conducted 20 semi-structured interviews with festivals organizers from Sibiu, Romania. Interviews took place between March 2023 and September 2023, were conducted in person, in Romanian, and were transcribed afterward.

The results show that factors like the financial resources, the areas of living and the lack of education contribute to an unequal access to cultural heritage. Regard to access for people with disabilities, opinions are divided on the presence or absence of ramps in venues hosting cultural events. An interesting result is related to the presence of women in the public space: while some of the festival organizers believe that women are under-represented and although things are moving in a right direction, it will take time before we have gender equity in this field, others consider that belonging to a certain gender is not a relevant criterion. Many festival organizers believe that unlike other ethnic minorities, such as the Saxons and the Hungarians, the Roma minority is under-represented in festivals and other cultural events organized in Sibiu, and they indicate various reasons for this situation.

# Promoting personal growth through hands-on training in safeguarding built cultural heritage

Oana Lup[1]; Veronica Vaida[2]; Stefan Cibian[3]

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[3] *Fagaras Research Institute; Romania*

Many heritage buildings in Romania are degrading over time. The Ambulance for Monuments (AfM) project intervenes to protect their further decay. A major challenge they encounter is the shortage of appropriately skilled labor, craftspeople proficient in using traditional materials and techniques. This is part of broader phenomena of declining interest in traditional crafts and increasing detachment of young generations from manual vocational skills. The AfM project collaborates with craftspeople and architecture experts to offer hands-on training in traditional conservation techniques to students, young professionals, and laypeople who volunteer in these interventions.

We discuss ways to enhance interest in hands-on occupations among Romanian youth by exploring the connection between such career choices and long-term personal growth and well-being. We used a mixed-method research design. We collected data from volunteers who participated onsite in AfM interventions using surveys and from craftspersons using semi-structured interviews. Our preliminary results indicate that the volunteers are students, professionals, and laypeople, most of them with an interest in architecture. Regarding the motivation for participation, a vast majority indicate interest in cultural heritage, and about half mention personal development and growth as reasons for participating. They see the gains of this participation in both professional and personal development.

# Heritage Spaces and Local Engagement: The role of heritage buildings protection in strengthening communities

Stefan Cibian[1]; Oana Lup[2]; Edi Beserman[1]; Veronica Vaida[3]

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2. *Lucian Blaga University of Sibiu; Romania*
3. *Momentum Association; Romania*

A low level of trust, solidarity, and community values is well documented in post-totalitarian Romania. This low level of social capital affects many areas of public life, including protecting heritage buildings. Recognizing this, the Ambulance for Monuments (AfM) has engaged since 2016 in interventions to safeguard heritage buildings from collapse or decay. They use an intervention model to safeguard the monuments from destruction, raising awareness about their value and promoting communities' heritage stewardship. Their interventions enlist various stakeholders, among them community members, who contribute by offering financial or in-kind support (e.g., meals, accommodation, tools, work on-site, etc.).

In this presentation we discuss how these interventions contribute to strengthening communities. We used a mixed-method research design. We collected data in phone surveys and semi-structured interviews with members of the communities where the interventions

took place, who volunteered by offering financial or in-kind support. The results suggest that once a well-organized intervention to safeguard local heritage takes place, a small number of local community members participate and contribute in various ways. Some continue to contribute to protecting cultural heritage once they learn how to do it. However, they feel mostly helpless regarding the prospects of continuing the restoration projects.

# Letters of Recognition: The Institutionalization of Literature in the Romanian Street Nomenclature

Mihai S. Rusu; Andrei Terian-Dan; Ștefan Baghiu
*Lucian Blaga University of Sibiu; Romania*

In Pierre Bourdieu and Axel Honneth's terms, the literary realm is underpinned by a fierce "struggle for recognition" that structures the field in terms of unequal relations of power, cultural prestige, and public visibility. In line with this sociological perspective, literary success is not the direct result of the aesthetical merits of writings, but should be conceived as deriving from the broader nexus characterizing the structured relations of power within the field, the latter itself being embedded into larger intertwining socio-political, economic, and political contexts. Taking inspiration from Honneth's term used to theorize the politics of recognition played out within the literary field, we advance the concept of "struggle for canonization" to understand the politics of posterity in the public memory regarding literary figures. Methodologically, we examine the statistical presence of literary figures in the Romanian street nomenclature at the national level, based on a complete collection of urban street names totalizing around 50,000 cases. Next, focusing on the sample of street names dedicated to writers (novelists, poets, and literary critics), we perform several types of statistical analyses that reveal the institutionalization of literature in the Romanian street networks in terms of gender, region, and ethnic identity.

# Safeguarding industrial heritage in Jiu Valley: the case of Petrila and Lonea mines

Edi Beserman
*Research Institute of Făgăraș; Romania*

The Jiu Valley region in Romania is known as the country former largest coal mining area, with 14 mines that we're still active until 1997. After that year, many mines we're closed and some demolished later on. But the mine of Petrila, which was programmed for demolition in 2016, was saved by local community actors efforts and was included in the National Register of Historic Monuments. Today, the mine is a place used for several social and cultural activities. Motivated by this success, the local community of Jiu valley intends in saving another mine, which is programmed to be closed in 2026 and then demolished, the Lonea mine. The aim of the presentation is two-fold. First, to show how the safeguarding activities of local communities in the city of Petrila, Romania managed to save the Petrila mine from demolition, as well as how they used this space further on. Second, how these communities act in order to save the Lonea mine from demolition.

# Promoting the Intangible Cultural Heritage Through a Student Journal – Revista de Antropologie Culturală (The Journal of Cultural Anthropology)

Maria Span

*Lucian Blaga University of Sibiu; Romania*

Safeguarding the intangible cultural heritage (ICH) also includes its promotion. The Journal of Cultural Anthropology (with an annual appearance) was founded in 2018 and its editorial board consists of second-year students from the specializations Conservation-Restoration, Heritage Study and History, Faculty of Socio-Human Sciences, Lucian Blaga University of Sibiu, Romania. Each issue of the journal starts from scratch, as the editorial board changes every year. Making the journal involves teamwork, but also an exercise in writing scientific articles – most of those who publish in the journal are on their first article. During these six years since the journal appeared, students with disabilities have been encouraged to participate in the project. The purpose of our communication is to show how to promote ICH through a student journal: from student motivation and journal design, to promotion methods and its impact on the community. The result: a genuine project that continued without interruption even during the pandemic, that does not require the existence of a budget, that invites intercultural and intergenerational dialogue, contributes to the promotion of respect for cultural diversity and human creativity. Sensitizing people is a means to encourage them to recognize the value of ICH and keep it alive.

# The "NUMMI DIGITALI" Project for the Numismatic Collection of the Regional Archaeological Museum "A. Salinas" of Palermo

Lavinia Sole, Dario Giuffrida, Francesco Armetta

*University of Palermo; Italy*

"NUMMI DIGITALI is a PON "Research and Innovation" project 2014-2020, which aims to enhance the numismatic collection of the Archaeological Museum "Salinas" of Palermo, thanks to the interrelation between numismatic-archaeological methodologies and the IT approach.

To this end, a digital database was created, in line with the standards and cataloging tools of the ICCD (Ministry of Culture) and with the methodological guidelines of the National Plan for the Digitization of Cultural Heritage (PND), to make the data interoperable and shareable, according to the LOD paradigm. The database has been connected to the web (https://nummidigitali.it) and is equipped with a front-end that guarantees accessibility to the external public and attractiveness thanks to high resolution images and 3D renderings with points of interest and references to hypertexts and/or multimedia.

# Non-invasive analysis for the conservation of the frescoes in the Monumental Complex of S. Maria della Grotta (TP, Italy)

Chiara Tuccio; Francesco Armetta; Maria Luisa Saladino
*University of Palermo; Italy*

The current study presents the results of non-invasive diagnostic investigations conducted in situ on the medieval frescoes in the complex of St Mary of the Cave, Marsala (Trapani, Italy). The aim of the study was to assess the frescoes' state of conservation and execution technique. The state of conservation of the wall paintings is compromised due to the characteristics of the environmental conditions typical of an underground environment: high humidity levels, poor air circulation, extensive colonisation of biodeteriogens, presence of salt efflorescence and detachment of the constituent material. The research highlights significant results on the thermo-hygrometric conditions of the environments, the nature of the original pigments used and the pathologies of the frescoes, in particular the presence of salts and the color changes. In detail, N.8 frescoes in rooms 1, 2 and 3 of the complex were studied in situ by using the non-invasive techniques XRF and FORS and Infrared and Raman Spectroscopy to identify the pigments. A few microsamples were collected for the investigation of salts by XRD and of biodeteriogens for DNA analysis. These results made it possible to select ad hoc conservation strategies for the consolidation of the frescoes in order to halt the ongoing degradation processes.

# Unlocking the Past: Insights into Mediterranean Archaeological Metals Through Spectroscopy, Chemometrics and Artificial Intelligence

Francesco Armetta; Maria Luisa Saladino
*University of Palermo; Italy*

The preservation and understanding of cultural heritage artifacts are of paramount importance for connecting with our historical and artistic past. The use of spectroscopic techniques, combined with chemometrics and artificial intelligence, offers a novel approach to analyzing the composition and structure of archaeological goods, shedding light on their conservation status, provenance, and historical context. The aim of this study was to apply advanced spectroscopic methods, alongside chemometric models and artificial intelligence algorithms, to investigate archaeological metal objects, aiming to uncover insights into their production, usage, and conservation needs.

The study analyzed a series of archaeological metal artifacts through a comprehensive survey involving spectroscopic examinations. These examinations were designed to identify the composition and manifacture, using chemometric techniques and artificial intelligence for data interpretation and analysis.

The approach of combining spectroscopic techniques with chemometric and artificial intelligence methodologies has proven effective in the study of archaeological metals from the Mediterranean basin such us the arrows from Mothia island. This multidisciplinary method infact aids in the conservation and restoration the arrows and on understanding of their provenience to Punic or Greek culture. The presentation will further elaborate on other case studies, demonstrating the practical application and outcomes of this research approach.

# The Faces of Rural Modernity in the Age of Entertainment and Tourism

Cosma Simion Valer

*Lucian Blaga University of Sibiu; Romania*

This paper examines the ways in which nationalism, folklore, peasant material heritage and concern for traditions and identity are intertwined in the case of promotional campaigns for rural tourist sites and folklore festivals in the Transylvanian area. I start from the premise that these types of campaigns are representative of a vast folklore entertainment industry and part of tourism marketing, reflecting a broad phenomenon in Romanian society and contributing to the perpetuation of an idealizing/mythologizing way of seeing and describing the rural world and the rural population. Following Regina Bendix s contribution on Authenticity, Folklore and Heritage (1997; 2018), I will examine the intertwining of Tourism, Festivals, Commodification and Narration, as another expression of rural modernity. The analysis is placed within a broader framework of transformations shaping the rural world, aiming to highlight the faces of rural modernity and the relationships between them.

# Characterisation of Lithic Tools for Provenance Study

Mirco Ramacciotti, Agustín Diez-Castillo; Agustín Pastor; Gianni Gallello; Oreto García-Puchol

*University of Valencia, Spain*

Lithic artefacts are important remains for comprehending the life of our Prehistoric ancestors. Indeed, reconstructing raw materials supply strategy is crucial in order to better understand socioecological dynamics, including mobility, territorial control and possible contacts. In the last years, analytical characterisation protocols have employed to identify the origin of lithic tools from archaeological contexts. This study shows the work carried out during the past few years on lithic materials from different areas of the Iberian Peninsula like Valencian Community and Cantabrian Mountains and the development of a multianalytical protocol based on both destructive and non-destructive approaches. The works pushed forward the characterisation of rocks from the two areas, permitting the identification of lithic materials from archaeological sites such as Cueva de la Cocina [1-2] and La Calvera rock-shelter [3]. The works carried out evidenced the effectiveness of rare earth elements as provenance markers. Furthermore, an innovative approach based on smartphone imaging colorimetry characterisation was tested for the first time.

Acknowledgements. The authors acknowledge PALARQ Foundation Analysis project 19/20 and the Spanish Ministry of Science and Innovation for funding the project EvolMED (PID2021-127731NB-C21). Mirco Ramacciotti acknowledges the support of the Margarita Salas Fellowship (MS21-176) funded by the Ministry of Universities (Spain).

# General Session: Physical and mental health in complex times of crisis, and economic and political instability

*The conference session, "Physical and Mental Health in Complex Times of Crisis, Economic, and Political Instability," provides a critical platform for addressing the multifaceted challenges faced by individuals and communities during turbulent times. In an era marked by crises, economic uncertainties, and political upheavals, this session focuses on the holistic well-being of individuals and societies. The session expects enlightening discussions on key areas such as - the impact of crisis on health (exploring issues such as stress, anxiety, trauma, and the role of healthcare systems in addressing these challenges), resilience and coping strategies, interplay between economic and political instability and their effects on healthcare access, social services, and overall well-being, policy and community responses.*

## Presentations:

## Constructive vs. destructive ways of coping with stress in times of global health crisis – an interactive approach

Dariusz Krok

*University of Opole; Poland*

The last few years have seen the occurrence of a major global health crisis, mainly due to the multifaceted consequences of the COVID-19 pandemic in the realm of physical and mental health. This has left most people confused and unprepared to cope with the stressful unpredictability of their life and future events. Systematic psychological reviews and meta-analyses of current studies show that the global health crisis, besides having economic (e.g., lockdown, loss of work) and social consequences (e.g., quarantine, social distancing, isolation, loneliness), has had detrimental ramifications on mental health. The current paper will examine constructive vs. destructive ways of coping with stress and its consequences to health behaviors. An interaction paradigm will be used, within which the relationships among the perceptive factors (e.g. threat appraisal, fear of potential danger), personal resources (e.g. resilience, meaning in life) and coping strategies will be examined in terms of their consequences for health behavior. The identification of pathways (coping strategies and comprehension of challenging life events) through which global health crisis affects mental health outcomes may contribute to understanding further the indirect relationships between disease-related factors and health behaviors.

# Health and Safety in Sheep Farming in Romania: The Multi-Actor Perspective of SafeHabitus

Alin Croitoru[1]; Mirela Stanciu[1]; Monica Șerban[2]; Sorina Corman[1]

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Within the European context, agricultural work stands out as one of the occupations with the highest rates of risks to workers' safety and significant associated health issues. Without exhaustively listing all the issues in Romania, we can consider the underdeveloped rural medical infrastructure, the use of outdated machinery on farms, a substantial amount of manual labor, inadequate training on safety and health matters for many workers in the field, and the insufficient inclusion of certain groups in the health insurance system.

Given the diversity of agricultural work, SafeHabitus in Romania focuses on addressing health and safety issues within the sheep farming sector. The research is grounded in qualitative methods specific to social research and incorporates data collected through focus groups and semi-structured interviews with various stakeholders in sheep farming. The analyzed data highlights the significance of the subject and the existence of multiple perspectives on the existent issues. Starting from our qualitative data, it is possible to compile a list of the main challenges and risks in this field and to illustrate how various stakeholder groups discuss health and safety in sheep farming, shedding light on the specific concerns and perspectives within the industry.

# Does psychological capital, gratitude and emotion regulation impact teachers' intrinsic motivation? Implication for teacher training.

Constantin Valer Necula; Daniela Dumulescu

*Lucian Blaga University of Sibiu; Romania*

Intrinsic motivation is a key factor impacting performance in teaching and teachers well-being. Investigating the psychological resources and factors that may promote intrinsic motivation, can help develop meaningful interventions and training for educators. The study aims to analyse the relationship between psychological capital resources (hope, optimism, resilience, self-efficacy), emotion regulation, gratitude and intrinsic regulation on a sample of 1365 Romanian teachers. More, we examined the differences among teachers in terms of teaching experience ,organizational level, educational cycle on the variables mentioned above.The regression analysis model showed that psychological capital resources (hope, self-efficacy, resilience), gratitude and emotion regulation predicted 24,5% (r2=.24.4) of the intrinsic motivation for teaching. ANOVA tests revealed significant differences among teachers regarding psychological capital, gratitude and motivation, especially related to their teaching experience and educational cycle. Theoretical and practical implications for building effective teacher training programs are discussed.

# The importance of personality resources in teachers' work during times of social-economic crisis: a mediational perspective

Dariusz Krok; Justyna Tkaczyk
*University of Opole; Poland*

Compassion plays a crucial role in fostering positive relationships between teachers and children. The issue analysed in the study is significant, because in times of social-economic crisis, personal resources appear to play a significant role in maintaining inner harmony and a compassionate attitude towards others among teachers. The aim of the current study was to understand the nature of relationships between the Light Triad, as an internal resource, and compassion for others within a mediational context of inner harmony among teachers work during times of social-economic crisis. The study was conducted on a group of 261 teachers working in primary schools, secondary schools, preschools and universities. The measures consisted of the Light Triad Scale, the Compassion Scale for Others, and the Inner Harmony Scale. The most significant finding revealed that inner harmony mediated the relationship between all the dimensions of the Light Triad with compassion for others. The research also demonstrated direct associations between the dimensions of the Light Triad with compassion for others and inner harmony. The study indicated that compassion for others is a crucial attribute, particularly in the role of a teacher, which justifies the need for further development of research and concepts within this research group.

# The association between fear of pandemic COVID-19 and achievement motivation in university students. The mediating role of stress coping.

Radosław Boczoń; Romuald Derbis (co-author)
*University of Opole; Poland*

Background. The analyzed topic holds importance because it indicates the relationship between students' motivation and the anxiety experienced in connection to isolation and the risk of illness occurring during the pandemic.

Aim. The main aim of the study was to check the role of coping with stress in the relationship between pandemic anxiety and achievement motivation in a group of polish students.

Methods. The survey was conducted online on a group of Polish students (N = 140) living in various voivodeships. In the study, pandemic anxiety was measured using the 'Kwestionariusz Postaw Koronowirusa' (KPK), preferred methods of stress reduction and achievement motivation were measured using the polish adaptations of Proactive Coping Inventory (PCI) and the Achievement Goal Questionnaire - Revisited (AGQ-R).

Results. In the study two models of mediated mediation and six models of cooperative suppression were confirmed.

Conclusion. The study showed that there are connections between stress coping styles and students' motivation. At first glance, fear of the pandemic was not strongly related to the variables. Only more advanced analyzes showed its significance. This relationship may have resulted from the period of collecting responses, when vaccines were already partially available to students.

# Risky working environment and the factors supporting mental health

Aleksandra Różańska[1] Aleksandra Gruszka-Gosiewska[2]; Joanna Kłosowska[2]

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The level of anxiety, stress and burnout of employees translates into their psychophysical functioning and it depend on situation. Soldiers who perform parachute jumps as part of their duties experience increased levels of arousal before and during the jump, making them particularly vulnerable to specific psychophysical and emotional reactions, including anxiety. The aim of the current study was to examine the effect of arousal resulting from parachute jumping on the level of anxiety and performance of cognitive tasks concerning attention and cognitive flexibility. A total of 77 professional soldiers employed in positions involving parachute jumping, aged 21-45, participated in the study. The research was conducted under three experimental conditions: before and after parachute jumps and in a control condition – during a day without jumping. Participants completed tests and tasks measuring mood, attention, divergent thinking, and anxiety. Contrary to theoretical premises and hypotheses, the results did not show changes in cognitive flexibility or attention performance as a result of arousal induced by parachute jumping. However, the results suggest that jumping experience (a greater number of jumps performed so far) reduces the level of anxiety associated with jumping.

# Mental health of children and youth in Poland

Ewa Kiełek-Rataj; Przemysław Zdybek

*University of Opole; Poland*

Background: The mental well-being of children and adolescents stands as a pivotal marker of their overall condition. In the Polish context, the typical challenges of adolescence have been exacerbated by additional factors such as the COVID-19 pandemic-induced transition to remote learning and the conflict in Ukraine. Over recent years, statistics concerning the mental state of young individuals in Poland have increasingly portrayed alarming trends.

Aim: The objective of this presentation is to delineate the mental health status of children and adolescents, encompassing both negative and positive influences.

Methods: This analysis draws upon available studies and reports pertaining to the mental health of children and adolescents in Poland and across Europe. Data from the past six years were scrutinized in this review.

Results: The literature review has yielded concrete indicators of the mental health status of children and adolescents, alongside more nuanced, subjective markers. Additionally, this presentation will delve into factors that bolster mental well-being as well as those that undermine it. Such insights lay the groundwork for understanding and deliberating upon the concerning decline in adolescent health within Poland.

Acknowledgements: The data presented herein was collated in collaboration with the "Instytut Rozwoju i Profilaktyki."

# Personality and situational predictors of helping war refugees from Ukraine.

Katarzyna Błońska; Przemysław Zdybek; Radoslaw Walczak; Zofia Kardasz

*University of Opole; Poland*

Background. The war in Ukraine caused a big wave of migrants, searching for a safe space. Poles responded with help initiatives, which started to decrease with time.

Aim. The aim of the study was to assess the personality and situational factors which determined the continuous help towards Ukrainian migrants.

Methods. The research was conducted on a sample of 720 people in the first measurement in March 2022, and then 127 people completed the questionnaire again in June 2022. In the context of personality factors, five basic personality traits were measured, the degree of altruism and sense of control, as well as state anxiety. The main situational factors included the sense of threat of armed conflict, the level of anxiety as a state and the intensity of following social media. Additionally, the level of social distance towards Russians and Ukrainians on the Bogardus scale was included in the model, and basic demographic data was collected.

Results. The regression analyses show that both personality and situational factors play a significant role in predicting the level of involvement in helping refugees.

Conclusion. Although personality remains an important predictor of helping behaviour, some situational contextsts may signifficanly change it's impact. Acknowledgements. No external financing

# Chronic illness and work (re)integration: stakeholders' perspectives in Romania

Adela Popa

*Lucian Blaga University of Sibiu; Romania*

Background. In the current demographic and social context, many people have longer working lives and are more likely to fall ill during them. However, a considerable proportion of people with chronic conditions choose to return to work after a period of temporary incapacity for work. The work reintegration process is complex and challenging and involves many stakeholders. Aim. This presentation is part of an extensive study focused on the obstacles to

the return to work of people with chronic conditions, potential enablers and collaboration between stakeholders involved in this process in Romania.

Methods. The study used desk analysis for understanding the policy context and a mixed methodology to collect data from four categories of social actors: online survey (n=325 workers) and interviews (22 with employers, 15 with health professionals and 11 with officials of non-governmental organizations).

Results. The paper presents both quantitative and qualitative results on barriers and facilitators of returning to work in the case of people diagnosed with chronic disease in Romania.

Conclusions. The study shows that the employer and health professionals have a critical role in assuring a good adjusting to work for people in this situation. Workplace adjustments are essential to facilitate return to work.

# General Session: Overpopulation and overconsumption triggering hunger, resource scarcity, migration, climate change, and the pollution of the atmosphere, the soil and the oceans

*This conference session, "Overpopulation, Overconsumption, and Their Consequences," delves deep into the interconnected issues of overpopulation and overconsumption, examining their far-reaching impacts on our planet. In an era characterized by pressing challenges such as hunger, resource depletion, migration, climate change, and environmental pollution, this session provides a comprehensive exploration of the root causes and potential solutions. This session offers a platform to engage in a nuanced conversation about the critical issues that our world faces, aiming to inspire collaboration and action to mitigate the adverse effects of overpopulation and overconsumption on our planet's well-being and future.*

## Presentations:

## Predictors of adaptation to life abroad among Poles in selected European countries during the COVID-19 pandemic

Magdalena Pysz

*University of Opole; Poland*

The aim of this work is to examine whether family relationships, temporal orientation and hierarchy of values can be a predictor of adaptation to the crisis caused by the migration of Poles to selected countries in Europe.

In order to measure the level of family relationships, the Circular Model of Marriage and Family Systems by David H. Olson and his colleagues was used. The measurement of temporal orientation was taken from the theory of time perspective by Philip Zimbardo and John Boyd (Time Perception Questionnaire). Among the respondents. In turn, the values were taken from Shalom Schwartz's Circular Value Model (Schwartz's Portrait Values Questionnaire PVQ-R). The theoretical construct of adaptation was taken from the Questionnaire Acculturation Orientation, Psychological Adaptation and Perceived Cultural Distance was created by Kali A. Demes and Nicolas Geeraert.

The results do not explain all assumptions in the variables, but indicate that hierarchy of values, family relationships and temporal orientation are predictors of adaptation to the migration crisis. France and the Netherlands are countries where emigrating Poles feel better adapted. Among Poles living in England and Sweden, the level of adaptation is the lowest.

# Empowering Sustainable Energy Transitions: A Comprehensive Strategy for Renewable Energy and Efficiency

Mihaela Rotaru; co-authors: Augustin Stoica; Claudiu Laurentiu Isarie; Florin Cristian Ciofu; Laurentiu Prodea
*Lucian Blaga University of Sibiu; Romania*

Background: Transitioning to renewable energy and energy efficiency is critical for mitigating climate change, reducing reliance on fossil fuels, and fostering sustainable development.

Aim: This study aims to outline a comprehensive strategy for promoting understanding and awareness of renewable energy and energy efficiency to support sustainable development in Sibiu County, Romania.

Methods: The project "Renewable energy and energy efficiency - for sustainable development in Sibiu County" employed diverse methodologies to gather data efficiently. This paper outlines the data collection methods and the process of selecting the Administrative Territorial Unit (ATU). A combination of quantitative and qualitative approaches was used to gain insights into renewable energy and energy efficiency practices in Sibiu County.

Results: Training sessions were held in 30+ communities across Sibiu County, emphasizing renewable energy use, energy-efficient practices, and financial prospects. Local technical experts attended three-day training sessions on renewable energy, energy efficiency, and energy security. A guide was created to promote awareness of renewable energy benefits, complemented by a communication plan and an Environmental Protection course at Lucian Blaga University. Additionally, a questionnaire was designed to assess the perceptions and knowledge of residents and stakeholders regarding renewable energy and energy efficiency.

Conclusion: The interventions led to increased awareness and understanding among citizens, identification of energy-related challenges and opportunities, engagement of local stakeholders, enhanced capacity among citizens, and dissemination of information on sustainable energy solutions. These outcomes contribute to promoting sustainable energy practices in Sibiu County.

Acknowledgements. The project "Renewable energy and energy efficiency - for sustainable development in Sibiu county" is funded with the support of grants from Iceland, Liechtenstein and Norway through the EEA and Norwegian Financial Mechanisms 2014 - 2021, within the framework of the "Romanian Energy Programme".

# Emerging risks in food safety as a consequence of climate change

Ana Juan-García; Cristina Juan

*University of Valencia; Spain*

Climate change (CG) poses significant challenges to global agriculture. Identifying emerging risks (EM) helps to improve organisms´ ability to meet future risk assessment challenges. Changes in temperature, humidity, rainfall patterns and the frequency of extreme weather events are already affecting farming practices, crop production and the nutritional quality of food crops [1]. CG could be a driver of EM for food and feed safety and drive the (re)emergence of new hazards, increase the exposure or the susceptibility to known hazards, and change the levels of micronutrients and macronutrients in food and feed items. Furthermore, it has been affecting to new tendency of feeding; including novel foods, just to get foods with high nutritional value.

Here the strategies to identify potential EM (natural and chemical) in the food chain is presented. It will deal with mycotoxins and their incidence due to CG and the consumption of edible insects as the new food risk. CG and implementing a safety management system, a GMP and HACCP principles for their production process are important to ensure food safety in edible insects free of mycotoxins. Knowing GMP and HACCP and evaluating the presence of mycotoxins will allow to establish strategies for dismiss the exposure.

# "I'm not a careerist!" Family and profession in the narratives of Moldovan doctors working in Romania

Alexandra Deliu; Mădălina Manea

*Research Institute for Quality of Life, Romanian Academy; Romania*

Romania is universally considered an emigration country, and especially one from which medical professionals choose to emigrate, usually in Western Europe or North America. On the other hand, various themes related to the healthcare system are common in the public discourse, focused on systemic issues and problematic patients' experiences. This proposal is constructed on an exploration of the other, less visible and far less developed, side of reality: Romania as a destination country for doctors and nurses. It is based on 10 biographical interviews conducted with healthcare professionals who immigrated in Romania from the Republic of Moldova. This type of interview enabled us to capture the meaning of migration as lived experience integrated in the broader life histories of participants, whose narratives are analyzed, with a focus on the (narrative) resources used by individuals in order make sense of their migration decision and experience. Our findings suggest that Romania holds a special status as destination country for potential emigrants from the Republic of Moldova due to several aspects, such as historical relations and geographical proximity. Moreover, Romania is seen as a gateway to Europe or, more precisely, an option for reconciling family attachment and struggles for professional development and recognition.

# Healthy ocean for healthy seafood: effect of environmental factors on fish welfare and quality, according to the "one health approach"

Simona Manuguerra[1]; Ana Juan-García[2]; Concetta Maria Messina[1]; Rosaria Arena[1]

1. *University of Palermo; Italy*
2. *University of Valencia; Spain*

Chemical contaminants are constantly found in the oceans and due to their environmental persistence, toxicity, bioaccumulation and biomagnification through the food chain, may have adverse effects on marine ecosystems and human health.

The accumulation of contaminants affects not only fish, but also fish consumers. Fish and fishery products are main nutrition security components as a source of essential fatty acid, such as omega3 polyunsaturated fatty acids (PUFAs), which play a critical role on health and function of marine organisms at all trophic levels. Therefore, it is important for the fishery value-chains to understand the mechanisms of contaminant's bioaccumulation, biomagnification and the side effects of their transfer to humans, through the food chain. Since in fish chemical contaminants accumulate in different tissues and organs, it is critical to investigate the effects of bioaccumulation on chemical composition and quality of fish products to understand the effects of contaminants along the food web system, from sea to human according to the "one health" approach.

# When less perceived discrimination leads to better quality of life: testing integration in the case Romanian immigrants in Greece

Delia Stefenel

*Lucian Blaga University of Sibiu, Romania*

Discrimination and well-being are attracting widespread interest in framework of the 2030 Agenda for SDGs, which targets to eradicate horizontal inequalities and biased attitudes. Even though at international level there are studies and models around perceived discrimination related-topics among ethnic groups (Rejection - Identification model of Branscombe et al.,1999, Rejection-Disidentification Model of Immigrant Integration of Jasinskaja-Lahti et al.,2009), there is still very little research about how people with migrants background living in Greece perceive and internalize discrimination. In such context, the present paper aims to test the Rejection-Identification Model of Branscombe, et al.(1999) among first-generation Romanians living in Greece.

For the present study, a total of 198 Romanian immigrants living in the Hellenic metropolitan area filled-in an adapted version of the instrument proposed by Bourguignon et al.(2006), designed to measure perceptions of personal and group discrimination. Also, subjective well-being scale of Diener et al. (1985) and The Multigroup Ethnic Identity Measure-

MEIM, Phinney (1992) were applied. The main results confirm the good psychometric proprieties of the proposed scales. The main findings are strengthened by selective integration-related excerpts, as revealed in narratives provided by highly-skilled Romanian immigrants in Greeby (Costachescu, Stefenel, Chesnel, Gisberts, Grommen, 2021).

# General Session: Role of life sciences in an increasingly aging society

*"Role of Life Sciences in an Aging Society" conference session provides a captivating exploration of the pivotal role that life sciences play in addressing the challenges and opportunities presented by our increasingly aging global population. As the world experiences a demographic shift towards older age groups, this session sheds light on the innovative solutions and advancements within the life sciences field. Gain insights into the latest research and breakthroughs in understanding the biology of aging, longevity, and how to promote healthier aging. Discover how life sciences are driving medical breakthroughs, from precision medicine and regenerative therapies to disease prevention and management. Explore the impact of an aging population on healthcare systems, social structures, and economic landscapes, and discuss strategies for adapting to these changes. Delve into the ethical and moral questions surrounding aging, life extension, and healthcare access.*

## Presentations:

## The Dark Triad, coping strategies and quality of life among cardiac patients

Maria Latusek-Mierzwa

*University of Opole; Poland*

Quality of life among cardiac patients is complex construct. It may be affected by many factors, such as coping strategies. Using effective coping strategies is linked with higher level of the quality of life. The Dark Triad is construct that includes psychopathy, machiavellism and narcissism and can also have influence on the quality of life. In current study, researcher tried to answer a question, does coping strategies and the Dark Traid have impact on quality of life among cardiac patients? results shows that there are significant relations between these factors.

## Chitosan hydrogel based on silver nanoparticles-nanocomposites for tissue engineering applications

Alexandra Nicolae-Maranciuc; Dan Chicea

*Lucian Blaga University of Sibiu, Romania*

Silver nanoparticles are metallic particles with versatile properties and applications. Nowadays, the need of alternative methods for infections, such as hydrogels dressings, is imperative since drugs or antibiotics are not accessible for every patient. Therefore, hydrogels based on natural polymers, such as chitosan and silver nanoparticles are evolving due to their high biocompatibility and their easy production as solutions in tissue engineering.

The aim of the current research was to develop an affordable medical biomaterial for antibacterial applications due to the high percentage of deaths reported in last years caused by bacterial infections.

Therefore the hydrogel proposed was chemically synthesized in the laboratory using a matrix based on 3% chitosan in which silver nanoparticle nanocomposites were integrated. The nanocomposites were characterized for structural and dimensional analysis using techniques such as UV-VIS spectroscopy or DLS and once their nanometric dimensions were confirmed, they were integrated in the hydrogel matrix. The microscopy performed proved the integration of particles in gel's layers, therefore the hydrogel can be considered a potential alternative method for antibacterial purposes since it is an affordable and comfortable medical device.

# From molecular mechanisms of ageing to age-associated diseases

Brian Luke

*Institute of Molecular Biology (IMB) / Johannes Gutenberg University (JGU) Mainz; Germany*

With age, individuals become more prone to serious, long-term illnesses, such as cancer, cardiovascular disease and neurodegeneration. Age-related diseases cause millions of deaths annually and pose enormous challenges for individuals and society. Despite their different clinical symptoms, most of those diseases have common molecular underpinnings, such as genomic instability, telomere attrition, epigenetic alterations and disrupted protein homeostasis.

To understand the process of ageing and to promote healthy ageing, i.e. to delay or prevent the onset of age-associated disease, an interdisciplinary approach targeting molecules, cells, organs and the entire organism is required. In Mainz, ageing has become a strong research focus. Initiatives such as the ReALity (Resistance, Adaptation & Longevity) network and the Centre for Healthy Ageing have been established to bring together basic and clinical researchers to promote healthy ageing and to prevent and treat age-related diseases. PhD Programmes and Master Modules have been developed to train young researchers in ageing research while offering access to cutting-edge techonologies, advanced training in scientific, transferable and professional skills as well as career development and mentoring.

Being embedded in this stimulating environment, my lab focuses on RNA/DNA hybrids, telomere biology & genomic instability, the latter two being defined as hallmarks of ageing.

# Effects of old and very old age on neuromuscular fatigue during isometric, concentric and cycling fatiguing tasks in men and women

Vianney Rozand[1]; Giorgio Varesco[2]; Mathilde Bertrand[2]; Eric Luneau[2]; Guillaume Millet[2]; Léonard Féasson[2]; Thomas Lapole[2]

1. *Inserm U1093 CAPS, University of Burgundy, Dijon, France;*
2. *Inter-university Laboratory of Human Movement Biology, Jean Monnet University, Saint Etienne, France*

The impact of aging on performance fatigability, particularly in isometric, dynamic, and cycling tasks with absolute workloads, was investigated. Participants included 26 young, 27 old, and 23 very old adults. The study utilized isometric and dynamic quadriceps intermittent fatigue tests, along with cycling tests, adjusting workloads based on body weight increments.

Results indicated performance decline across age groups in all conditions. In men, maximal force decreased earlier in cycling for older adults compared to the young but not in isometric and dynamic tasks. However, young adults showed greater fatigability than very old adults in isometric tasks. For women, older age groups exhibited earlier maximal force decline in cycling and concentric tasks compared to the young. However, fatigability at exhaustion was similar across ages and tasks for women.

Overall, young adults outperformed older counterparts regardless of task when adjusting for body weight. Fatigability onset varied across tasks and age groups, emphasizing the need to assess fatigability not only at exhaustion but also at sub-maximal levels closer to daily activities' intensity. These findings underscore the importance of considering age-related changes in fatigability for designing effective interventions targeting functional decline.

# Addressing Neurodegenerative Disease: Nanozymes Showcasing Exceptional Antioxidant Performance

Pablo Navarro Madramany

*University of Valencia; Spain*

According to the World Alzheimer Report, more than 46.8 million people were globally living with dementia in 2015, which costed the health care services up to $818 billion. Current trend indicates these numbers will double every 20 years, becoming a global health concern. Life sciences will be crucial for addressing this issue in an increasingly aging society.

The malfunction of the nervous system associated with several neurodegenerative disorders has been linked to the misregulation of free metal ions and oxidative stress. For example, in Alzheimer's disease, accumulation of copper and iron in beta-amyloid plaques is thought to be responsible for an increased oxidative damage in certain areas of the brain. Ongoing research is focused on the sequestration of these transition metals to avoid their participation in the formation of the protein aggregates, as well as on the reversion of their toxic oxidative activity to antioxidant activity.

A family of nanozymes capable of sequestering copper and iron has been synthesized and characterized. Solution studies and activity assays indicate that they can coordinate these

metals at physiological pH, resulting in the formation of complexes able to mimic superoxide dismutase and catalase/peroxidase enzymes with remarkable performance.

# Eat healthy and fight against detrimental effects of mycotoxins

Alessandra Cimbalo; Lara Manyes; Pilar Vila-Donat; Sarra Rafai
*University of Valencia; Spain*

Mycotoxins toxicity from low but continuous exposure through diet might be prevented through the intake of functional ingredients. Fermented whey (FW) with lactic acid bacteria is obtained from goat milk and rich in organic and phenolic acids. This study in vivo aims to confirm the possible beneficial effect of these two functional ingredients against mycotoxins. A subchronic study was performed using Wistar rats exposed for 28 days. After baking, AFB1 ranged from 4.31±0.16 to 4.92±0.29 mg/kg and OTA, from 6.03±0.39 to 8.27±0.07 mg/kg. Duodenum from male rats was analysed by qPCR. AFB1 contaminated feed caused an upregulation of p53 and Bax proapoptotic genes in the duodenum. Inclusion of FW as a functional ingredient slightly reduced gene expression but upregulated NF-κB. OTA exposure significantly upregulated antiapoptotic gene NF-κB. Proapoptotic gene Bax and antioxidant defense enzyme Hmox1 were moderately upregulated. FW soothes the effect on the three genes and upregulates p53. Simultaneous exposure to AFB1 and OTA led to under expression of Bax, counteracted by the addition of FW to feed, which also led to upregulation of NF-κB. All these results suggest a protection against mycotoxin effects by lyophilised FW included in feed at duodenum level in the gastrointestinal tract.

# An Exploration of Virtual Reality to Induce the Proteus Effect with the Goal of Reducing the Fear of Falling in Aging Subjects

Elizabeth Thomas
*University of Burgundy, Dijon, France*

This study explored the sense of embodiment in aging subjects using virtual reality (VR). This step is necessary before attempting to exploit VR to reduce the fear of falling through embodiment. We compared the sense of embodiment of aging and young subjects using avatars that were created with 3D cameras. The subjects conducted synchronized movements with the avatars. The sense of embodiment was then evaluated using previously published questionnaires. While significant differences between the two populations were found on the question of capacity to detection physical contact during the VR session, no significant differences were found in response to explicit questions of body ownership.

# General Session: The chemistry of the Green Deal

*"The Chemistry of the Green Deal" conference session champions the imperative of interdisciplinarity in our collective pursuit of a sustainable future. It emphasizes the central role of chemistry as a bridge between various fields, highlighting its capacity to unlock innovative solutions in the context of the European Green Deal. The participants will delve into multifaceted discussions addressing the Chemistry's transformative power in green energy solutions and circular economy practices, witness the synergy between chemistry and other scientific domains in driving the ambitious goals of the Green Deal. Join us in recognizing the transformative potential of interdisciplinary collaboration in realizing the ambitious goals of the European Green Deal and securing a sustainable future for all.*

## Presentations:

## Bio-based polymers and Innovative Green Processes

Raluca Malacea-Kabbara

*University of Burgundy; France*

For environmental, economic and societal reasons, the replacement of fossil resources (oil, gas, coal) is nowadays a crucial necessity and a real challenge for the 21st century. In this quest, the use of biomass resources can be considered as an alternative route, in line with a sustainable and environmentally friendly approach. Thus, biomass can provide a wide variety of biobased molecules that can lead to compounds with higher added value. This is also true for the development and study of new biobased polymers. Several projects in the fields of catalysis, green chemistry, bio-based polymers are carried out at ICMUB in this context. Aluminum and zinc complexes with four generation of phenoxy-amidine ligands were developed. Their structures were determined in solution and in solid state and showed that they can act as bidentate, tridentate or tetradentate ligands. Aluminum and zinc complexes displayed good activities in ROP of lactide even at room temperature.

## Investigating ancient Islamic gold coins through non-invasive techniques: elemental analysis and smartphone colorimetry

Roberto Sáez-Hernández, Adela R. Mauri-Aucejo; M. Luisa Cervera; Maria Josefa Luque; Ángel Morales-Rubio

*University of Valencia; Spain*

In this presentation, the non-invasive analytical investigation of ancient Islamic gold coins is presented. A two-fold methodology was deployed: first, portable X-ray fluorescence was used in order to analyse the elemental profile. Second, a smartphone-based procedure was developed and validated to obtain the CIELAB descriptors of the samples.

Based on the elemental profile, a stable content of gold was found around 90 % (w/w), followed by lower levels of siler. Also, some remarks about the origin of the coins are presented based on the elemental composition. Addressing the elemental description, the smartphone-based method was designed in order to tackle the main challenges associated to these cultural heritage artifacts, like glare. Upon comparison with a reference device, the proposed smartphone method allowed to obtain a objective description of the CIELAB descriptors of the ancient coins.

Overall, this presentation presents an approach to investigate valued historical samples from a nondestructive perspective. The combination of robust techniques like X-ray fluorescence coupled to new advances based on smartphones allows one to characterise these samples from a wider and more complete perspective. These results prove the potential that new technologies present in the field of analytical applications to the Cultural Heritage field.

# Corona process preserves the bio active properties of biobased packaging films

Clément Poulain; Cecilia Akotowaa Offei; Claire-Hélène Brachais; Frédéric Debeaufort; Marie-Laure Léonard; Nasreddine Benbettaieb

*University of Burgundy; Dijon; France*

The Corana process is a technique based on non-thermal plasma. This low-energy technology is well known in industry for surface functionalisation and is gaining interest in the agro-food sector as a multi-tool for packaging: surface disinfection without harmful chemicals, support for printing processes, increase of adhesion of coatings. In this work, the corona process is studied along a bio-based film designed with bioactive properties using natural phenolic acids. The aim of this work is to understand if corona process is a suitable technology along bioactive food packaging. After plasma treatment of the still wet hydrogels, the functional properties relevant for food packaging (barrier properties against light and gases, antioxidant efficiency of the films, ...) were checked. No significant changes in the polymer matrix were found by applying the corona process onto the films. The bio-based packaging films were not degraded by the plasma. Similarly, the antioxidant properties were not affected when the gels were used as a coating for PLA. Therefore, the corona process can be used alongside bioactive bio-based packaging without affecting the functional properties of the system, allowing it to be used in a production line.

# European Green Deal: Putting an end to wasteful packaging: Hopes and fates

Frédéric Debeaufort

*University of Burgundy; Dijon; France*

The European Green Deal prioritizes enhancing people's wellbeing by striving for climate neutrality and safeguarding the environment, which benefits citizens, the planet, and the economy. Packaging plays a crucial role within the Green Deal, particularly concerning food

production, preservation, and addressing plastic-related challenges tied to five of its 11 priorities: pollution elimination, global green transition, sustainable agriculture, food waste reduction, and nature conservation. Studies show that increased packaging correlates with reduced food waste and enhanced consumer safety, albeit at the expense of increased packaging waste and pollution.

While materials like glass, wood, fiber, paper, metal, and ceramics are well-managed and have low biodiversity impact, the focus of the Green Deal is predominantly on plastics, which dominate food packaging and contribute significantly to ocean pollution. The Green Deal's strategy for plastics and packaging centers on achieving "zero waste" and revising regulations by the end of 2024. Various strategies have been proposed, ranging from the traditional 3R's (Reduce, Recycle, Reuse) to more comprehensive approaches like the 6R's, which include replacing plastics with bioplastics and promoting process innovation. The presentation will illustrate current challenges, outline proposed solutions, and highlight hopes for the future of sustainable packaging practices.

# General Session: Digitization and artificial intelligence as key drivers for education and science in the future

*The conference session, "Digitization and artificial intelligence as key drivers for education and science in the future," delves into the transformative power of digitization and artificial intelligence (AI) in shaping the future of education and research. This session serves as a compelling exploration of how these technological advances are revolutionizing the educational and scientific landscape, discussing data-driven science, automation and optimization, intersection of digitization and AI with various scientific domains, ethical considerations. As a platform for interdisciplinary dialogue this session aims to fostering innovative cross-pollination of ideas and methodologies.*

## Presentations:

## Digitization and Artificial Intelligence in Education – an Innovation Driver or Innovation Disrupter?

Agnese Rusakova[1], Shahlo Komilova[2], Arborjan Boboev[2], Aripova Gulnora[2]

1. *University of Latvia; Latvia*
2. *Tashkent Institute of Chemical Technology; Uzbekistan*

Background: Digitalization and AI are increasingly prevalent in education, influencing both innovation and disruption. These technologies are altering traditional educational models, teaching methodologies, and learning environments, posing both opportunities and challenges. There's a need to understand how they reshape the education landscape, especially in terms of personalized learning, efficiency, and potential disruptions.

Aim: To explore whether digitalization and AI act as drivers of innovation or disruptors in the field of education. The study aims to investigate how these technologies impact educational models and clarify their roles in shaping the future of education.

Methods: The authors examine both past and current trends in the application of digitalization and AI in education. They also analyze various case studies to explore the dual impact of these technologies—how they enhance education and where they pose challenges.

Results: The analysis reveals that digitalization and AI play a dual role. They drive innovation by enhancing personalized learning, improving efficiency, and increasing access to education. However, they also disrupt traditional education by raising equity concerns, ethical issues, and challenges to traditional teaching practices.

Conclusion: Digitalization and AI, like previous technological advancements such as the introduction of calculators in mathematics or – even earlier - the shift from ink to pencils, are transformative forces in education, serving as both innovation drivers and potential disruptors. Their future influence on education will hinge on how effectively challenges related to equity, ethics, and maintaining pedagogical integrity are addressed. The authors emphasize that a

nuanced understanding of the dual impact of these technologies is crucial for guiding their responsible integration into the educational landscape.

# Narrative patterns in the coverage of AI technologies in contemporary online science journalism

Katarzyna Molek-Kozakowska, Robert Radziej
*University of Opole; Poland*

This study explores the range of discursive patterns used to present artificial intelligence as a revolutionary but controversial technology in online science journalism. It uses a triangulated dataset of over a hundred recent mini-narratives sourced from New Scientist, Nature daily briefings, and Scientific American to identify the salient thematic scopes and narrative trajectories. The data-guided qualitative analysis uses the categories of agency, sentiment, point of view, and news value to reconstruct each outlet's specific contribution to the evolving sociotechnical imaginary of AI technologies. While acknowledging some limitations and risks of AI technologies, science journalism celebrates revolutionary advancements produced through embracing AI for science. Yet, online science communicators do so in a strategic way to keep up the interest, often by projecting diverse storylines with oscillating sentiments, meshing fact with evaluation, and priming users to accept the inevitable uses of algorithms as increasingly independent research-performing agents.

# Analyzing the economic footprint of e-commerce on real GDP growth

Sylvester-Robert Radomir; Razvan Serbu
*Lucian Blaga University of Sibiu, Sibiu, Romania*

The development of the global economy is one of the most important factors in an always-changing digital environment. More online sales, with backing of businesses' digital transformation, will surely have a big implication on the macroeconomic health of nations, especially in growth of Real Gross Domestic Product (GDP). This implies that the dynamic is supposed to be understood to craft good economic policies and business strategies in the digital age.

# AI in School: The Influence of Automatic Text Generation and Machine Translation on Language Comprehension and Translation Performance

Athanasios Breskas; Dimitrios Kapnas; Silvia Hansen-Schirra
*Johannes Gutenberg-Universitat Mainz; Germany*

The integration of AI, particularly ChatGPT, into the classroom raises significant implications for language learning and translation processes. This study investigates how pupils

utilize conventional translation tools alongside new technologies like ChatGPT in foreign language classes, an area largely unexplored in translation process research. The aim was to assess the efficiency and impact of these tools on reading comprehension, language processing, and translation quality among 13 pupils at Rudi-Stephan-Gymnasium Worms, a ForThem partner school. Using inputlog, we observed that while ChatGPT facilitated quicker task completion and fewer translation errors, it also led to more extraneous information in reading comprehension tasks. Terminology remained a challenge across conditions. Importantly, the study emphasizes that tools alone do not compensate for language skills; rather, proficiency is essential for evaluating tool output and making informed decisions. These findings highlight the need for a nuanced approach to integrating AI in educational settings, recognizing both its benefits and limitations in enhancing language learning and translation processes.

# Navigating the AI Landscape: Comprehensive Applications in Drug Development and Pharmaceutical Dosage Formulation

Dmytro Soldatov; Oleksandr Kukhtenko; Vitaliy Ilienkov

*National University of Pharmacy, Kharkiv Ukraine*

This study explores the transformative role of Artificial Intelligence (AI) in drug development and pharmaceutical dosage form development amidst healthcare challenges posed by pandemics and regional conflicts. Through an extensive review of approximately 20,800 studies, we highlight AI's growing influence across drug development phases, from discovery leveraging machine learning and neural networks, to formulation using predictive modeling. Notably, AI's application in drug discovery promotes efficiency and aligns with green chemistry principles, as evidenced by the collaboration of MIT with 13 firms in the Machine Learning for Pharmaceutical Discovery and Synthesis Consortium. We also discuss an innovative NLP method that efficiently identifies potential drug repurposing candidates by transforming scientific texts into structured drug-disease pairs. Additionally, a session on "Modeling and Artificial Intelligence Approaches" revealed advances in IVIVC predictability using symbolic regression and genetic programming, though its complexity limits current practical application. Our findings underscore AI's capacity to significantly improve drug development's efficiency and sustainability, marking a critical shift towards more advanced pharmaceutical processes, despite challenges related to data quality and model validation.

# Use of artificial intelligence among Master's in Teaching students: an exploratory study

Juan Carlos Casañ Núñez[1]; Catalina Millán-Scheiding[2]; Elia Saneleuterio[1]; María Alcantud-Diaz[1]

1. *University of Valencia; Spain*
2. *Berklee College of Music; USA*

Artificial intelligence (AI) offers a range of opportunities for learning and teaching. On the other hand, the use of AI also raises concerns related to ethical considerations, data privacy,

accuracy, etc. MA in education students can provide critical insights into the use of AI in Education. Moreover, it is essential to know their opinion because they will teach future generations. This presentation reports the preliminary results of an exploratory study on how MA in education students use AI tools, how they think AI could be used in second/foreign language teaching, and how it affects the assessment. The participants were 31 students enrolled in the Master's in Secondary Education Teacher Training (Speciality of Foreign Language: English). Data collection involved a questionnaire with closedended and open-ended questions. Data was collected in October 2023 and qualitative data has yet to be thoroughly analyzed. A preliminary analysis suggests that participants do not often use AIdriven tools in their daily lives nor to complete university assignments, that the most popular tools are ChatGPT and Grammarly, and that they are undecided regarding the potential of AI to enhance second/foreign language education.

# How deep are wage gaps in Spanish tourism sector? A tale of low productivity, inequities, and poor salaries

Aimée Torres Penalva[1]; Luis Moreno-Izquierdo[1]; Adrián Más-Ferrando[1]; Sandra Zapata-Aguirre[2]

1. *University of Alicante;Spain*
2. *Universidad De La República; Uruguay*

This study investigates wage disparities in Spain's economy, analyzing elements such as gender, age, education, and digital skills across different productive sectors. Tourism, due to its significance in the Spanish context, becomes the focus of this study. Employing post-COVID-19 data, this research confirms previous works indicating low productivity, inequalities, and low wages experienced in tourism. However, as tourism is methodologically presented in a decomposed manner into subsectors, our results serve to complement and expand the knowledge to date. The study highlights the need for policies that promote wage equality and a new industrialization of the Spanish productive fabric to allow workers to raise their salary expectations.

# A Moodle-based learning situation focusing on the Sustainable Development Goals for pre-service teachers

Juan Carlos Casañ Núñez

*University of Valencia; Spain*

Students pursuing Teaching Degrees must become acquainted with the SDGs, as they will play a key role in imparting the values of sustainability to upcoming generations.

This presentation describes a learning situation focusing on the SDGs for the course English as a foreign language for teachers. This is a compulsory course in the first year of the degree in Primary School Education at the University of Valencia.

The main aims of the learning situation are to become familiar with the SDGs, to reflect on the relative importance of each SDG, to reflect on the role of teachers in achieving the SDGs,

to improve students' level of communicative competence in English and to encourage pre-service to design activities that incorporate one or several SDGs. The unit of instruction is Moodle-based and includes several interactive multimedia activities (H5P) to make the learning situation more engaging and appealing to students. The learning situation is an updated version of Casañ-Núñez (2021).

# Urban Reconstruction of Buildings and Environment

Marco Cangemi

*University of Palermo; Italy*

Inside the Virtual Archaeology Lab at the University of Palermo, an ambitious plan has been developed to create a methodology for reconstructing ancient cities, called Urban Reconstruction of Buildings and Environment (URBE). This protocol, based on the principles of Virtual Archaeology and utilizing cutting-edge technology, aims at the restoration and virtual three-dimensional reconstruction of monumental complexes. The project based on the research of Professor Elisa Chiara Portale and Professor Massimo Limoncelli benefits from collaboration among archaeologists, architects, and restorers from various departments and institutes, each contributing scientific data necessary for constructing the models and compiling virtual restoration hypotheses. The project's goal is to study the urban topography and organization of ancient cities, ultimately restoring their images within a game engine environment. This is achieved through the analysis and reconstruction of individual monuments across different time periods. The resulting platform serves as a new tool for both communicating and disseminating archaeological findings, as well as for research purposes, facilitating multidisciplinary collaboration within a virtual environment.

# The Influence of Artificial Intelligence on Academic Research and University Curriculum Design and Content

Valentin Grecu; Radu-Emanuil Petruse

*Lucian Blaga University of Sibiu; Romania*

Background. The influence of artificial intelligence (AI) on academic research and university curriculum design and content is a topic of growing interest and importance in academia.

Aim. This study aims to explore the intersection of AI and academia, using both bibliometric and bibliographic data from Scopus and Web of Science, as well as visualization tools such as VOSviewer. Methods. The research methodology consists of two searches within each database, resulting in keyword co-occurrences and network visualization maps that reveal the prevailing trends and focal points in AI academia.

Results. The findings demonstrate the increasing integration of AI in academic research and curriculum design, as well as the key areas of focus and potential future directions.

Conclusion. The paper concludes with recommendations for further research and emphasizes the need for continuous exploration of AI's impact on academia to prepare students for the AI-driven future. References:

# Education in the age of AI

Lenka Axlerova

*Microsoft*

Key contribution by Lenka Axlerova, Education lead in Central Europe at Microsoft. Presentation by Lenka Axlerová will demonstrate how AI can enhance education and what skills are needed for the AI era. It will also provide examples of AI in education and a call to action to start the AI learning journey.

# The Social Sciences and Humanities – Creative research ideas and their potential societal impact (Cross-disciplinary session for Early-Stage Researchers)

*"The Social Sciences and Humanities: Creative Research Ideas and Their Potential Societal Impact" conference session places early-stage researchers at the forefront, recognizing their role as catalysts for innovation and change. This session is dedicated to nurturing creativity and fostering cross-sectoral collaboration within the fields of social sciences and humanities, as well as beyond, to drive meaningful societal impact.*

## Presentations:

## Existential meaning and subjective well-being in pregnant women: the parallel mediation of social support

Anna Machnik-Czerwik; Dariusz Krok

*University of Opole; Poland*

The aim of the study was to investigate whether there is a relationship between existential meaning and subjective well-being of pregnant women, considering the mediatory role of social support towards existential meaning and subjective well-being. 266 pregnant women completed measures of existential meaning (MEMS), social support (BSSS), and subjective well-being (SWLS, PANAS-X). Results revealed that existential meaning correlated positively – with perceived available support and actually received support, and negatively – with protective buffering support. Existential meanings were also positively associated with life satisfaction and positive affect, and negatively associated with negative affect. Perceived available support, support seeking, and actually received support were positively correlated, while protective buffering support was negatively correlated with life satisfaction and positive affect. Through the mediation analyses, it can be concluded that the perceived available support, actually received support, and protective buffering support were parallel mediators between existential meaning and the cognitive and affective dimensions of subjective well-being. These findings have important practical implications regarding the planning of health care programs for pregnant women: specifically, people from their close environment and medical professionals should attitudes present supporting pregnant women, not only for the prevention of risk but also for promoting health as a subjective well-being.

# The Literary or Screen Character: Projections of the Self in the Patterns of Verbal Communication

Mădălina Eugenia Ciucu (Răsniceanu)
*University Of Craiova, Romania*

This article, (part of the thesis titled "Eros și Thanatos - paradigme ale devenirii feminității în romanul românesc interbelic"), highlights the important role of verbal communication, illustrated by the dialogue of the literary and/or screen character. On the one hand the dialogue is the way of transmitting thoughts and feelings, on the other hand it represents a mean of directly influencing the discussion partner. Such persuasive messages, contained in interpersonal communication, are offered as examples in the dialogue of the literary characters in the following works, subject to analysis: Adela (Garabet Ibrăileanu), Ciuleandra (L.Rebreanu) and Ultima noapte de dragoste, întâia noapte de război (C. Petrescu). Through the dialogue, the presented characters reveal their thoughts and feelings, demonstrating their professional training, their point of view about the world and life, their desire to understand others and to be understood. Also as an applicative part, I have selected two models of interpersonal communication Shramm's model and the Meyer-Eppler model - which present the connection between the encoding of the message, its decoding and the feedback.

# Beyond Roads and Clinics: Exploring Health-Seeking Behavior and a Holistic Approach to Enhanced Healthcare Access in Majhgaon's Indigenous Community

Ankit Kumar Jha
*Translational Health Science and Technology Institute (THSTI), India*

This paper explores health-seeking behavior and healthcare access within Majhgaon's Indigenous Community, situated in the Gumla district of Jharkhand, India. Despite global progress in public health, resource-constrained environments pose persistent challenges, especially concerning human behavior toward healthcare. This study investigates the factors influencing HSB, with a particular focus on decision-making processes and barriers to healthcare access. The study adopts a holistic framework, considering social, economic, and geographical determinants of health behavior. Through in-depth interviews and focus group discussions, data were collected and analyzed using a conceptual model based on the "three delays" theory. Findings reveal multifaceted challenges, including inadequate healthcare infrastructure, geographical remoteness, socio-economic constraints, and cultural beliefs, significantly affecting HSB. Notably, the provision of adequate care emerged as a critical bottleneck, exacerbated by non-functional healthcare facilities and resource shortages. The study underscores the need for community-centric interventions, integrating local stakeholders such as ASHAs, ANMs, and traditional healers. Additionally, it calls for policy reforms tailored to local contexts, moving beyond a standardized approach to healthcare delivery. While offering valuable insights into healthcare disparities among indigenous populations, Ultimately,

the study contributes to the discourse on equitable healthcare access and underscores the importance of contextually relevant interventions in addressing healthcare disparities.

# The European press coverage of the Sustainable Development Goals (SDGs) and the 2030 Agenda: content volume and analysis of key themes

Alberto E López-Carrión

*University of Valencia; Spain*

This study delves into the media coverage of the Sustainable Development Goals (SDGs) and the 2030 Agenda across the five most populous European countries: Germany, France, Spain, Italy, and the United Kingdom. Despite a recognized global imperative to address these goals, there's a noted lack of awareness in the populace. Using Factiva's digital newspaper archive, the research identifies trends in coverage volume and thematic focus over recent years. Results indicate a notable increase in media attention, particularly in Spain and Italy, with topics revolving around domestic policies and health receiving prominence. The findings suggest that shifts in government leadership may influence the prioritization and communication of SDGs. This underscores the crucial role of media in raising awareness and fostering dialogue around global sustainability challenges. The study contributes to understanding how media dynamics intersect with public discourse on sustainable development, highlighting opportunities for targeted communication strategies to drive engagement and action towards achieving the SDGs by 2030.

# The Andean Baroque as an expression of human and cultural development in Latin American."

Rodolfo Marcone-Lo Presti

*University of Valencia; Spain*

The concept of the "Andean Baroque" is undergoing a reevaluation in current discussions of Latin American critical political thought. It represents an ancient form of subtle resistance stemming from the artistic elite and cultural heritage of the Inca empire. The Jesuits played a significant role in fostering this process of artistic interculturality, which transformed the landscape of Alto Perú and influenced the entire southern Latin American region. The Baroque movement, often associated with ornamental complexity in terms of aesthetics, actually represents a departure from classicism to return to the essence of artistic expression. It embodies a critique of unprecedented complexity, mirroring the tumultuous era in which it emerged – the conquest of America, the Counter-Reformation, and the convergence of two contrasting worldviews: indigenous and Western. The Andean Baroque symbolizes the quest to reclaim a lost primal harmony. For instance, the remarkable advancements in pictorial technique seen in the Cusco School, where Western artistic traditions are reinterpreted through indigenous lenses, signify a remarkable fusion. This form of gentle synthesis and unique creativity reflects a significant human and cultural development worthy of study in today's complex world.

# Adolescents antisocial behaviour. Comparative study by gender and age

Elena-Teodora Nurciu; Mariana Floricica Călin

*Ovidius University of Constanța, Romania*

The aim of the current study was to examine and evaluate differences in antisocial behavior to adolescents by gender and age. The sample consists 76 students: 35 girls and 41 boys aged 14 to 18 years. Subjects are high school students in different urban and rural areas from Romania. The research was conducted by administering my own questionnaire that contains 32 questions for antisocial behavior. Statistical results have shown that there are significant differences in gender and age of antisocial behavior. Most antisocial behaviors in adolescence have occurred from social problems, family and educational problems. In such moments, the understanding, support and emotional communication offered by the family and school environment can have positive results in diminishing this kind of behaviour.

# Institutional Influence on Development Aid Effectiveness: Local Agri-food System in Malawi and Burundi

Lola Martínez Aragón; Ana Sales Ten; Juan Ramón Gallego-Bono

*University of Valencia, Spain*

Despite decades of cooperation efforts, many countries have not yet achieved the expected levels and impact on development. A poor articulation between the local institutional framework and development aid can be a determining factor in the inefficiency of aid. The aime of this research is to investigate the challenges surrounding the articulation between local institutional frameworks and development aid, with a particular emphasis on the agri-food sector, to clarify the underlying reasons for its low effectiveness and propose strategies for improved outcomes.

# Assessment and therapeutic intervention for teenagers' anxiety disorders

Rodica Gabriela Enache; Laura Stanciu

*Ovidius University of Constanța, Romania*

Background. The structuring of the adolescent's personality leads to a series of complex internal experiences involving states of distrust, anxiety and almost permanent anxiety.

Aim. The aim of the current study focuses on the evaluation and analysis of anxiety as a primary state among adolescents aged 13 to 16 years (n=48), its effects when it is the basis of cognitive distortions, and the offer of therapeutic alternatives to improve the general state of well-being. Methods. The following tests were applied to a sample of 48 students: Achenbach system of empirically based assessment (ASEBA) and Cognitive Emotion Regulation

Questionnaire CERQ Results. The results obtained through the analysis of the Spearman correlation coefficient, confirm the direct positive relationship between anxiety problems and the tendency to catastrophize during adolescence against the background of the specific state of egocentrism but also the lack of experience in managing life situations. Comparative data suggest a predisposition of adolescents to develop anxiety disorders, both on biological grounds but also due to less developed coping mechanisms, difficulties in optimal perception of self-esteem, which creates a difficulty in coping with the demands of academic and social activities. Therapeutic intervention plays an important role in counselling adolescents with anxiety disorders.

# Enjoying learning and learning to learn

Alina Georgeta Mag

*University Lucian Blaga of Sibiu, Romania*

Joy is at the bottom of motivation to learn, according to recent studies, and we need to find more data through research, to reveal students' point of view concerning their learning engagement and strategies. This gap in practice is an intense concern at the Teacher Education Department of "Lucian Blaga" University of Sibiu, as we train students that become future teachers in a global and complicated society. This paper explores students' perceptions of finding joy in learning and learning how to learn, by researching their individual experiences on three topic questions: How to enjoy learning? How to achieve meaningful learning? How to use a strategic learning approach? 110 students enrolled in the first year at the Pedagogical Module were invited to attend focus groups and individual interviews, with open questions that encouraged self-reflections concerning their learning. The study reports on the focus groups and the themes that emerged from the data. Findings revealed that our students are very different and there are better ways to support their learning and engagement than grades and diplomas during their academic preparation. They face stress and difficulties if they don't find a meaningful learning context and effective strategies to progress.

# Assessing the well-being of older people - The influence of social support on their life satisfaction and loneliness

Adriana Moiseiu; Mariana Floricica Călin

*Ovidius University of Constanta, Romania*

Background. The significance of the analysed issue lies in the fact that, since 1988, the World Health Organization has identified senescence as one of the top five priority health issues for the population, alongside cardiovascular diseases, cancer, AIDS, and alcohol-related problems. Social relationships and social activities have been identified to be key elements contributing to an individual's physical and mental health throughout his or her life. In this context, social support has become an intensively studied topic in various disciplines such as psychology, sociology, medicine, even economics.

Aim. The present study seeks to investigate the correlation between social support, loneliness, and life satisfaction in individuals aged 65 and above. Additionally, it aims to identify

and assess the potential mediating role of social support in the connection between feelings of loneliness and life satisfaction within this age group.

Conclusion. Increasing social support involves increasing life satisfaction and decreasing the feeling of loneliness, as well as mitigating the negative impact of loneliness on life satisfaction.

# The representation of the Hippies in the USSR, through the forms of communication

Paula Popov

*University Lucian Blaga of Sibiu, Romania*

The Hippie culture slipped through the Iron Curtain and got to the communist block, so it had to be adapted to the soviet reality. To manage this, the regime used visual media channels like cartoons and magazines, that were often distributed or intended for the young generation. By analyzing the caroons: "The Bremen Town Musicians" which depicted characters resembling hippies, promoting values of freedom and friendship within socialist contexts, and magazines such as "Crocodile" satirized hippies aiming to discredit the movement, and present them as a minority and fashion trend that was tolerated by the state to minimize this way the influence of this social-political movement.

# Bullying victims between Romanian and Italian adolescents

Andreea Manolache; Sîntion Filaret

*Ovidius University of Constanta, Romania*

Bullying is a type of violence that threats wellness of children and adolescents. Bullying episodes are especially common during transitional periods in the lives of children and adolescents when they figure out where they fit among new peer groups. Bullying can be a persistent menacing and aggressive physical behaviour or just a verbal abuse directed to other people. The effects of bullying are felt by individuals, families, schools and society. The children who are victims of this phenomenon feel powerless and humiliated by the aggressive acts of other children. This research was carried out in order to measure how Romanian and Italian teenagers perceive bullying.

The hypothesis elaborated was: "It is presumed that there are significant differences in the perception of bullying between Romanian and Italian adolescents". The sample of this research is made up of 60 people aged 17 to 24, both female and male. The criteria of selection was nationality, respectively Romanian and Italians. The applied tool for carrying out this research is the scale for assessing the perception of teasing.

Based on the statistical results obtained, this research has demonstrated that there are no significant differences in the perception of bullying between the Romanian and Italian teenagers.

# An approach to the presence of interdisciplinary encounter in cinema: The music in Jacques Demy's Film (1961-1968)

Núria Cervelló Ramos

*University of Valencia, Spain*

This presentation has the aim to spread how new waves of interdisciplinary work can be a source of culture and a way to connect, in this case, the art with quotidian life. In this occasion, we will explore the work of Jacque's Demy films to see how music can be the main way of sending messages and at the same time to create a space where arts like painting or architecture can tell a story in another way.

# Influence of Personality Traits on Sustainable Tourism Consumer Behaviour

Constantina-Alina Ilie (Miloș)

*Ovidius University of Constanta, Romania*

When tourism is viewed as an economic activity more than capable of having an accentuated negative impact on the environment, the issue of sustainability is brought to the fore. From a psychological point of view, sustainability is the way to influence and change individuals' destructive behavioural patterns, which is based on a complex network consisting of individual values, attitudes, knowledge, habits and social norms. Growing awareness of environmental issues, limited natural resources and high environmental costs are driving the adoption of sustainable behaviours. The present research aimed to study the personality traits that influence consumer buying behaviour to sustainable tourism.

The results of the study carried out on a sample of 95 people revealed that some personality traits have a significant relationship with the consumption behaviour of sustainable tourism - by influencing the attitude towards sustainable tourism - extraversion, conscientiousness and openness to experiences.

Despite the limitations related to sample size and characteristics, the paper highlights that research in the field of the influence of personality traits on consumption behaviour in sustainable tourism on the Romanian population remains open and that future research directions could involve a larger sample to ensure representativeness at local, regional, even national level.

# Natural Sciences – Be innovative and shape the future in your field (Cross-disciplinary session for Early-Stage Researchers)

*The conference session, "Natural Sciences: Fostering Innovation and Empowering Early-Stage Researchers to Shape the Future," stands as a dedicated platform for early-career scientists to drive innovation, collaborate across sectors, and contribute to the advancement of their respective fields. This session aims to inspire and empower the next generation of natural scientists, fostering a culture of innovation, collaboration, and forward-thinking.*

## Presentations:

## How to measure the non-convexity?

Miruna-Stefana Sorea

*Lucian Blaga University of Sibiu, Romania*

In this talk, we are partially motivated by the problem of non-convex optimization in Machine Learning and by applications of Morse theory in Data Science. We aim to introduce Poincaré-Reeb graphs. Encoding both quantitative geometrical aspects of the shape and qualitative topological properties, these graphs are meant to measure the non-convexity of a real algebraic plane curve. Our main goal is to give a characterization of all topological types of Poincaré-Reeb graphs. Using the polar curve and the discriminant curve, we unveil the properties of these graphs, emphasizing the asymptotic behavior of level curves near a strict local minimum of a real bivariate polynomial function. In the local setting, the Poincaré-Reeb graphs are stabilizing trees that encode the asymptotic shape of the levels near the strict local minimum. Inspired by the works of Arnold and Ghys, we first rephrase our problem in terms of univariate Morse polynomials. We present an effective algorithm that constructs a large family of real bivariate polynomial functions near a strict local minimum realizing all separable Poincaré-Reeb trees.

## Otsu's Method for Image Segmentation

Ilina Mihai

*Lucian Blaga University of Sibiu, Romania*

Otsu's Method is a widely used image segmentation technique designed to automatically determine the optimal threshold for separating objects from the background in a grayscale image. Developed by Nobuyuki Otsu in 1979, this algorithm aims to maximize the inter-class variance between foreground and background pixels while minimizing the intra-class variance within each region. The method efficiently identifies the threshold that best discriminates between object and non-object pixels by iteratively evaluating possible thresholds and calculating their associated variances. Once the optimal threshold is determined, the image is binarized, creating a clear distinction between the targeted objects and the background. Otsu's Method has proven robust and computationally efficient, making

it a popular choice for applications such as medical image analysis, character recognition, and various computer vision tasks where precise segmentation is crucial for subsequent analysis and interpretation. Its simplicity and effectiveness contribute to its enduring relevance in diverse image processing domains.

# Generative Image Algorithms based on AI approach with comparative results

Georgian-Cristian Chivu
*Lucian Blaga University of Sibiu, Romania*

The presentation focuses on Generative Image Algorithms based on AI approaches, comparing their performance in various fields such as art, design, entertainment, and many others. By evaluating different models with common prompts, the study aims to assess the quality and realism of generated images. Results indicate that models producing images with greater detail and realism are considered superior, highlighting strengths and weaknesses across different algorithms. The conclusion underscores the importance of selecting algorithms based on specific task requirements to achieve optimal results.

# The future in our hands: children under the age of 3 developing scientific thought and treasuring nature through museum's experiences

Maria Fusté Forné
*University of Valencia, Spain*

This presentation argues that it is important that children develop their scientific skills and scientific thought since early ages. It is also relevant to connect them with nature developing positive attitudes and values towards the environment. In this sense, museums that create educational activities for children under the age of three use different strategies and methodologies to approach natural sciences to preschoolers. Based on interviews and direct field work in Catalan museums, results show that is possible to engage children with scientific thought and nature through experimentation inside the museum, natural itineraries outdoors and transporting the museum to the school. All the experiences that children have during their first three years of life impact on their knowledge, skills and values. This presentation shows that there is potential to increase the number of museums that offer these experiences to connect children with natural sciences.

# Selected examples of applications of active moss biomonitoring in air pollution assessment

Anca-Iulia Stoica[1]; Małgorzata Rajfur[2]; Paweł Świsłowski[2]; Stanisław Wacławek[3]

1. *University of Natural Resources and Life Sciences, Vienna, Austria*
2. *University of Opole, Poland*
3. *Technical University of Liberec, Czechia*

The use of biological indicators (biomonitoring) is an alternative method to classical air quality monitoring. The study aimed to evaluate air pollution in urban areas using active moss biomonitoring. The examples involved the analysis of air pollution by elements and polycyclic aromatic hydrocarbons (PAHs). Experiments were performed during the launching of fireworks on New Year's Eve, the activity of a car workshop, the comparison of pollution from the smoke of tobacco products, and long-term biomonitoring. We used Pleurozium schreberi, Sphagnum fallax and Dicranum polysetum mosses to conduct biomonitoring studies. Analytes were determined by flame atomic absorption spectrometry, inductively coupled plasma mass spectrometry, and gas chromatography-mass spectrometry.

The presented examples indicate the importance of measuring vital parameters of mosses. For elements, the difference in concentrations between environments depends on the type of element and its source. The contamination of PAHs showed a seasonal variation, and the main sources of pollution were road traffic and combustion processes. Mosses are sensitive biomonitors of point sources of pollutants, emitting heavy metals and PAHs into the air. Human activity indicates the importance of performing biomonitoring studies analyzing air quality, and thus provides opportunities to make the public aware of their impact on atmospheric aerosol contamination.

# Insect and spider distribution modelling by using remote sensing and machine learning methods: A case study in Apšuciems mire, Latvia

Maija Štokmane; Voldemārs Spuņģis

*University of Latvia; Riga*

Our study proposes a novel and multidisciplinary approach of studying the spatial distribution of insects and spiders in mire habitats. In this approach we used the "traditional" ecological methods which are extensively utilized by ecologists to examine ecological communities, and we coupled these methods with the ones that are rather unfamiliar and quite new to ecologists – the geospatial techniques (i.e., remote sensing) and the computer science technologies (i.e., machine learning), and as a result we developed a unique approach of studying insect/spider communities in mires. Overall, our method has a potential to transform the nature protection in Latvia by offering a brand new approach that might potentially be applied in endangered insect/spider species distribution studies in terrestrial habitats in Latvia, as well as for managing environmental resources in general.

# Brassica-Enriched Pasta: Exploring the Interplay of Nutritional Benefits and Sustainable Agriculture

Fojan Agahi[1]; Cristina Martínez-Villaluenga[2]; Elena Cartea; Elena Peñas[2]; Juana Frias[2]; Pilar Soengas

1. *University of Valencia, Spain*
2. *Institute of Food Science, Technology and Nutrition, Madrid, Spain*

The future of Europe relies on solutions that address both health and economic challenges. With an increasingly health-conscious population and growing concerns about food sustainability, there is a demand for innovative food products that offer both nutritional value and environmental benefits. Brassica is a key agricultural genus in the Brassicaceae family, which comprises a large number of plant species with economic importance. Due to their high functional and nutritional properties, Brassica plants have been the subject of much scientific interest. The aim of this study was to improve the nutritional and bioactive potential of fettuccini-type pasta by incorporating four different varieties of Brassica. Fettuccini enriched with brassica-derived powder were found to be a rich source of protein and showed higher levels of riboflavin, phenolic compounds and antioxidant activity than control pasta elaborated without brassica addition. By harnessing the nutritional benefits of brassicas and leveraging the popularity of pasta, this innovative food product addresses key challenges related to health, agriculture, and economic sustainability. More importantly, by integrating Brassica vegetable into pasta, a staple food in many European diets, we can create a product that not only meets the nutritional needs of consumers but also supports agricultural sustainability and economic growth.

# Industrial-produced lemon nanovesicles ameliorate experimental colitis-associated damages in rats via the activation of antiinflammatory and antioxidant responses

Alice Conigliaro[1]; Francesca Rappa[1]; Mar Larrosa[2]; Maria Grazia Zizzo[1]; Mariangela Tabone[3]; Nima Rabienezhad Ganji[1]; Riccardo Alessandro[1]; Roberta Gasparro[1]; Rosa Serio[1]; Stefania Raimondo[1]; Vincenza Tinnirello[1]

1. *University of Palermo; Italy*
2. *Complutense University of Madrid, Madrid, Spain*
3. *Universidad Europea in Madrid, Spain*

Plant-derived nanovesicles (PDNVs) are lipoproteic nanostructures naturally produced by cells involved in intra- and interspecies cell-cell communication. They concentrate and carry a multitude of healthful compounds naturally present in plants, simultaneously protecting them from external degradative and oxidative events; for these reasons, they can lead to phenotypic changes also in mammalians. In addition to their natural origin, non-toxicity, and low immunogenicity, the possibility of isolating from large volumes makes them attractive for their use in clinics as a preventive and/or therapeutic strategy for many inflammatory diseases, including inflammatory bowel disease (IBD).This work aims to investigate the biological

properties of industrially produced lemon nanovesicles (iLNVs) and to evaluate their protective effects against IBD. Our findings highlight several key aspects that contribute to the understanding of the mechanisms underlying the anti-inflammatory and antioxidant properties of iLNVs, revealing advantages in the management of IBD.

# Quasi-isometric liftings and quasicontractions

Andra-Maria Stoica; Laurian Suciu

*Lucian Blaga University of Sibiu, Romania*

We study the linear operators on Hilbert spaces having dilations to quasi-isometries. This class of operators that can be dilated to quasi-isometries is exactly the class of operators similar to contractions.

# On matrix representations of operators that are isometric with respect to generalized covariances

Denisa Nicoleta Cunțan; Laurian Suciu

*Lucian Blaga University of Sibiu, Romania*

We would like to generalize, from the dilation theory point of view, the study of operators that are isometric with respect to the first-order covariance.We highlight the conditions under which an operator admits a dilation satisfying $S_*\Delta_S S = \Delta_S$, where $\Delta_S$ is a generalized covariance for S.

# SupraVacc - Supramolecular Design of Synthetic Vaccines and Injectable Biomaterials

Pol Besenius[1]; D. Straßburger[1]; E. Schmitt[2]; I. Silvestre[2]; J. Erlenbusch[1]; M. Urschbach[1]; N. Stergiou [2]; R. Attariya[2]; T. Bopp[2]

1. *Johannes Gutenberg University of Mainz; Germany*
2. *University Medical Center Mainz; Germany*

Peptide secondary structures can be harnessed to design monomers capable of self-assembling into supramolecular polymers in aqueous media. Decorating the surface with immunogenic molecular patterns results in pathogen-mimicking entities and potential vaccine candidates. In the context of antitumor vaccines, the challenge is to overcome self-tolerance mechanisms to enforce an immune response against endogenous, tumor-associated glycopeptide motifs. A co-stimulation of B cells with Th cells is mandatory, which is aimed to achieve using a co-presentation of different epitopes and immunostimulating agents at the surface of multicomponent supramolecular polymers. Mucin 1 (MUC1) is well-known for undergoing alterations in O-glycosylation during tumorigenesis,6 and is thus an excellent tumor-associated target structure for immunotherapy. In this contribution the focus is on the use of fully synthetic glycopeptide from MUC1 tandem repeat sequence. As T cell epitope we chose a small fragment from highly immunogenic tetanus toxin. Imidazoquinoline as potent

TLR7/8 agonist, was synthesized. Epitopes were conjugated to supramolecular monomers and mixed in aqueous solution. High antibody titers of IgG type were observed in C57BL/6 mice and FACS analysis confirmed the high binding affinity of antibodies to T47D tumor cells. Results support the potential of this modular supramolecular platform approach for the development of glycoconjugate vaccines.

# Ecological succession of spider assemblages (Araneae) in a limestone quarry from Romania

Ioan Tăușan[1], Maria Stănciugelu[2]

1. *Lucian Blaga University of Sibiu; Romania*
2. *Brukenthal National Museum, Natural History Museum, Sibiu; Romania*

Background. Ecological succession is one of the basic and important concepts in ecology, yet poorly understood in many aspects, especially when concerning ground-dwelling invertebrates. These organisms are a key component of terrestrial ecosystems and can be a reliable tool for ecological restauration.

Aim. The aim of the current study was to highlight the mechanisms underlying secondary succession in terms of species composition, diversity, and abundance.

Methods. We applied the SFT (Space for Time substitution) approach (sensu [1]) and carried out field campaigns in a limestone quarry in centre Romania, where we selected different aged sites to build a chronosequence from the first stage of succession to the climax stage, which was considered the forest habitats surrounding the impacted area.

Results. Altoghter, we identified 22 species of spiders belonging to 10 families. Based on the correspondence analysis (CA) we observed that the first three stages of succession are more similar compared to the climax stage. In terms of diversity, despite no significant differences between the stages of succession, there are clear differences in terms of composition.

Conclusion. The greatest change occurred between the first and second year, indicating a rapid evolution of the assemblages during this interval. However, in the T4 stage, the assemblage structure remained relatively stable, suggesting an adaptation or resistance to environmental changes in this forest habitat.

# Poster session

## Presentations:

## Mycotoxins in Food, High Impact in Consumers' Health: A Review of In Vitro Assays

Claudia Moyano López; Ana Juan-García

*University of Valencia; Spain*

Background: Mycotoxins are fungal metabolites from Aspergillus, Penicillium, or Fusarium, whose ingestion pose health risks from cultivation to consumption [3] and co-occurrence may exacerbate these effects [2]. Aim: This review aims to provide updated information of the in vitro toxicity studies, reported in the last 10 years (2013-2023). Methods: Databases as Web of Science, PubMed and Google Scholar and "mycotoxins," "in vitro","cytotoxicity," "cell line," and "oxidative stress" were used as keywords in toxicology journals as Toxicology Letters and Food and Chemical Toxicology. Results: It was real that MTT assay or CCK-8 assay are suitable to study the cytotoxicity of mycotoxins. It is crucial to consider the generation of reactive oxygen species by the H2-DCFDA assay, the lipid peroxidation by TBARS assay, the membrane potential by the JC-1 fluorescent probe and apoptosis and necrosis processes; individually and combined in several cell lines. These last three are based on flow cytometry. Conclusion: the toxicity reported was concentration and time dependent highlighting the importance in continuous research, essential to protect consumers health. Acknowledgements: Spanish Ministry of Science and Innovation PID2020-115871RB-100 and Conselleria d'Educació, Universitats i Ocupació from Generalitat Valenciana project CIAICO2022/199.

## Environmental impact of Gliotoxin, Ochratoxin A and its combination in Daphnia magna model

Raquel Penalva Olcina[1]; Cristina Juan[1]; Eeva-Riikka Vehniäinen[2]; Mónica Fernández-Franzón[1]; Ana Juan-García[1]

1. *University of Valencia; Spain*
2. *University of Jyväskylä; Finland*

Background. Gliotoxin (GTX) and Ochratoxin A (OTA) are toxins naturally produced by fungi, known for their potential health risks. Aim. With the aim to give a deeper insight in GTX, OTA and their combination action mechanisms, in vitro studies were performed in Daphnia magna model. Methods. The following assays were performed: A) acute toxicity test where subjects were treated at serial dilution concentration mycotoxins and its combination during 96h. B) heartrate: heartbeat of D. magna was recorded after treatment with the highest concentrations C) chronic toxicity assessment after 21 days exposure D) offspring

determination during 21 days of exposure to GTX, E) growth rate tests after 21 days of exposure. Results. . GTX exhibited IC50 values ranging from 0.08 µM to 0.006 µM and producing a decrease in D. magna heart rate. OTA IC50 went from 0.2 µM to 0.1 µM. Binary combination displayed a reduced survival after 48 hours leading to a decrease in offspring number. Conclusion. The findings contribute with valuable insights for assessing the risks associated with mycotoxin exposure. Acknowledgements. Spanish Ministry of Science and Innovation PID2020-115871RB-100. Conselleria d´Educació, Universitats i Ocupació from GVA: project CIAICO 2022/199. FORTHEM Alliance. University of Valencia, Ph.D. grant "Atracció de Talent".

# Life Satisfaction, Self-esteem and Body Appreciation as Determinants of Well-being During the COVID-19 Pandemic

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This study explores the relationships among life satisfaction, self-esteem, and body image, considering gender and age disparities and the moderating role of body appreciation. Conducted through a cross-sectional online survey in Poland during the COVID-19 pandemic (between October 18 and December 6, 2021), involving 449 adults (M = 30.41, SD = 12.72). The participants completed the Satisfaction With Life Scale (SWLS), Rosenberg Self-Esteem Scale (RSES), and Body Appreciation Scale (BAS-2). Results indicate that men exhibit higher scores than women in life satisfaction and self-esteem, while older participants (age > 30) surpass younger individuals (age < 30) in life satisfaction, self-esteem, and body appreciation. Positive and moderate correlations among life satisfaction, self-esteem, and body appreciation were confirmed. Controlling for age and gender, an interactive effect emerged between self-esteem and body appreciation on life satisfaction. The findings underscore the importance of tailored intervention programs to improve the well-being of adults during the complex times of crisis, encompassing the challenges of the COVID-19 pandemic. Specifically, focusing on enhancing self-esteem and fostering body appreciation is recommended. These insights offer a nuanced understanding of factors influencing well-being and inform targeted strategies to address mental health issues in diverse populations facing the compounded effects of crises.

# Individual and combined exposition to Acrylamide, Penitrem A and 3-acetyldeoxynivalenol increases lipidic peroxidation in SHSY5Y cells

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Understanding the interplay between compounds in oxidative stress modulation is vital for deciphering mechanisms of neurotoxicity and oxidative stress-related damage. The aim of the current study was to investigate the concentration-dependent effects and interactions of

acrylamide (AA), penitrem A (PEN A), and 3-acetyldeoxynivalenol (3-ADON) on lipid peroxidation (LPO) in SH-SY5Y cells.The LPO on SH-SY5Y cells was determined by the TBARS method in the presence of different concentrations of AA, PEN A, and 3-ADON , both individually and in combinations. Results obtained show that after 24h of exposure, the malondialdehyde (MDA) production was significantly increased by each treatment. Results: Concentration-dependent increases in lipid peroxidation were observed with AA, PEN A, and 3-ADON individually and in combination. The triple combination did not result in the highest MDA levels, indicating possible regulatory mechanisms of action. Conclusion: This study underscores the importance of considering compound interactions and concentrationdependent effects in oxidative stress research. The observed interaction patterns highlight the complexity of cellular responses to compound combinations, emphasising the need for comprehensive evaluation in oxidative stress modulation studies. Acknowledgements: Spanish Ministry of Science and Innovation PID2020-115871RB-100, and Conselleria d'Educació, Universitats I Ocupació from Generalitat Valenciana projects AICO/2021/037 and CIAICO2022/199. LB the pre-PhD scholarship (CIACIF/2021/203).

# Towards Sustainable Monitoring: Innovating Electro-chemical Biosensors for Pesticide Detection in Seawater

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The widespread presence of pesticides in food, water, and soil poses significant environmental and health concerns, particularly organophosphorus and carbamate insecticides known for their toxicity. These pesticides inhibit acetylcholinesterase (AChE) activity, crucial for nervous system function. Traditional methods like colorimetry, capillary electrophoresis, and high-performance liquid chromatography are effective but complex and costly. Biosensing offers a simpler, faster, and more cost-effective approach. This study focuses on developing an electrochemical biosensor to indirectly monitor AChE activity targeting pollutants like carbendazim and malathion in seawater. AChE's catalytic activity is studied using cyclic voltammetry with p-acetoxyphenol as a substrate, producing an electroactive product (hydroquinone) detectable via electrochemistry. Key to the biosensor's development is immobilizing the enzyme by encapsulating it in a sol-gel silica matrix. Kinetic and inhibition studies confirm the relationship between added pollutant concentration and enzyme activity inhibition. This biosensor offers promise for early detection of marine contaminants, contributing to sustainable environmental monitoring efforts.

# Stronger Foundations for Critical Games: Contrasting Flanagan's Critical Play with Freirean Pedagogical Principles

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In an era marked by growing anti-democratic propaganda, the need for civic education becomes imperative. In particular, critical citizenship education, developed by Paulo Freire, can

provide citizens with the necessary critical tools. I contend that, to counter the anti-democratic threat, there must be investment in effective tools for critical citizenship education.

Games have been found to constitute a suitable methodology for the teaching of civic competencies and development of interest in civic topics. But while there is a growing number of civic games, those integrating critical theory remain scarce. Flanagan's research on critical play is a notable contribution. However, upon comparing Flanagan's intended social impact of critical play to the framework that the author proposes for the analysis and design of critical play, a certain misalignment between the two could be said to emerge. I contend that this gap could be filled by an integration of critical citizenship pedagogy.

The present study aims to bridge critical play and critical citizenship education, by identifying gaps between the characteristics of existing critical games and the pedagogical strategies prescribed by Paulo Freire. Based on this analysis, I propose a framework for the design of Freirean critical play.

# Use Of Eye-Tracker To Assess Oculomotor Movements In Elderly People

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Background. The analysed issue holds significant importance because eye-trackers (E-T) are increasingly present in clinical practice for non-invasive testing.

Aim. To conduct a literature search focusing on the use of E-T in elderly patients and/or patients with age-related diseases that impair speech.

Methods. We searched for articles published after 2014 in Pub Med, combining the following keywords in title and abstract: "eye tracker", "ocular movements", "fixations", "saccades", "elder". A total of 10 articles were obtained in this review.

Results. The use of E-T in elderly people or people with age-related illnesses that make speech difficult, allows diagnostic eye tests to be carried out without the need for the patient to speak. Furthermore, in the case of oculomotor studies, it allows objective evaluation of movements that are almost imperceptible subjectively. The use of E-T to analyse oculomotor activity helps to detect eye diseases and neurodegenerative pathologies in their early stages.

Conclusions. The use of Eye-Trackers can be very effective in the evaluation of oculomotor skills in elderly or speech impaired patients, as it is a test that can be performed objectively, without the patient speaking, and only requires them to observe the different stimuli shown.

# Smartphone applications in mural painting analysis: distinguishing pigments based on smartphone colorimetry

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Mural painting has been a decorative motive throughout history. As usual in Cultural Heritage, their investigation is based on non-invasive analytical methods. XRF fluorescence spectrometry and Raman or Infrared spectroscopies are the main instruments that are applied in this field to gain an understanding on their composition, especially in terms of the nature of the coloured pigments. In this context, this contribution develops the advances that our group has carried out using new technologies to create innovative analytical approaches. These intend to help in the research and conservation endeavours of these historical samples by implementing affordable and easy-to-use methods that yield reliable information. In this case, smartphones were studied as colorimeters, so different characterization methods were studied and compared in terms of colour reproduction. To that end, mural painting replicas were prepared and painted using 12 inorganic pigments (covering 4 hues -red, yellow, green and blue- with 3 pigments per hue). Their colour was captured with the smartphone, and the RGB data was readily transformed and corrected to CIELAB descriptors. Using this information, different chemometric models were trained and tested to check their predictive potential. The results demonstrated outstanding predictive potential of the optimised models, with low errors of prediction.

# Museums' Role in the Public Discourse of Climate Change and Climate Crises. Analysis of the Museums' Strategic Documents.

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The analysed issue holds significant importance because climate change appears to be one of the critical problems of the contemporary world. Many organizations have started to change their activities towards environmental efficiency. Cultural institutions, such as museums, play essential roles in shaping attitudes, disseminating knowledge, and creating beliefs. The current study aimed to analyse the museum's role in the public discourse in the field of climate change and climate crises. The methodology used in the study is a qualitative study. Based on Critical Discourse Analysis, the Authors will present the main significant themes, topics and explanations of climate changes used by museums in their communication process, i.e. in strategies. Museums adapt to the challenges of shaping new attitudes and beliefs towards climate change. So, they change their identity as future-oriented and ecologically sensitive institutions. The following areas were analysed in the public discourse realised by museums: social injustice, nature – museums relationship or human fault. The human being-centred approach is still mainstream and dominant in the public discourse. The

analysed discourse concerning climate change realized by museums focuses on primary and general terms, not concrete solutions.

# E-Learning And Steam: An Active Educational Proposal

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Today's students will be the men/women of tomorrow and whether in the future they will become professionals, whether they will perform purely manual activities, they need to learn how to think creatively, immerse themselves without hesitation in a world with a high technological rate, building new possibilities for themselves and their community. The quality and success of university education depends on many factors, ranging from purely organizational and logistical aspects (course planning, availability of classrooms, laboratories, instrumentation, etc.) the skills developed by students at the end of their studies. The goal of this research is to build a new vision of STEAM education supported by new learning environments that can enrich the learning experience of students of the degree program in "Physics for primary school and childhood" and the analysis of the pedagogical value of the tools made available by the Moodle platform when it is implemented in active teaching.

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