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## PERSONAL INFORMATION

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Family name, First name: Meleg, Ioana Nicoleta

Date of birth: 15th of October 1982

Nationality: Romanian

Marital status: domestic partnership

One child: Sara Lascu (2017)

URL for web sites: <https://starubb.institute.ubbcluj.ro/meleg-ioana-nicoleta-scientific-researcher-ii/>



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## PROFILE

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Evolutionary biologist and speleologist, with particular expertise in the ecology of Romanian caves and karst system, as well as ancient DNA and palaeogenomics.

In my career I have focused on subterranean ecosystems to address questions in: a) ecology, ranging from classical ecology over subterranean biodiversity related to subterranean and surface landscape features to molecular studies on crypsis phenomenon in subterranean fauna, and b) palaeoecology to investigate ancient population genomics within a palaeoenvironmental context.

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## PROFESSIONAL EXPERIENCE

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- **Since 2022:**
  - \* Scientific researcher II, Institute of Advanced Studies in Science and Technology – STAR-UBB Institute;
  - \* Executive director, Emil G. Racoviță Institute for the Study of Life in Extreme Environments.
- **Since October 2013:** Researcher, “Emil Racovita” Institute of Speleology, Romanian Academy, Bucharest.
- **March 2016 – September 2018:** Potsdoctoral Research Fellow, Alexander von Humboldt Foundation, hosts: Prof. Hervé Bocherens (Tübingen University); Prof. Michael Hofreiter (Potsdam University).
- **June 2011 – September 2013:** Researcher, Romanian Academy, “Emil Racoviță” Institute of Speleology, Cluj-Napoca.
- **October 2007 – September 2013:** Research assistant, Romanian Academy, “Emil Racoviță” Institute of Speleology, Cluj-Napoca.
- **September 2006 – October 2007:** Coordinator of Protected Areas Program, Centru pentru Arii Protejate si Dezvoltare Durabila Bihor (Centre for Protected Areas and Sustainable Development) (CAPDD).

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## EDUCATION

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- **October 2008 - April 2013: PhD, Biology, Romanian Academy,** “Emil Racovita” Institute of Speleology. Thesis title: “Population dynamics of subterranean Crustacea: ecology, genetics and conservation”. Cluj University Press, Cluj-Napoca, 87 p. Awarded degree: *summa cum laude*
- **September 2006 – June 2007: MSc,** Systemic Ecology and Biodiversity Conservation, Babes-Bolyai University.
- **September 2002- June 2006: BSc,** Ecology and Environment Protection, Babes-Bolyai University.

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## FUNDING RECEIVED SO FAR

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- **January 2021 - December 2023: Inferring spatio-temporal palaeodynamics: from ancient biomolecules to organismal (overviews on cave sediment sequences)** (Exploratory Research Project funded by Romanian Executive Unit for Financing Higher Education, Research, Development and Innovation; 240,000 EUR;

grant: PN-III-P4-ID-PCE-2020-0518).

- **2020 - 2022: Research projects for young research teams funded** by the Romanian Executive Unit for Financing Higher Education, Research, Development and Innovation (86,000 EUR) - **DECLINED**.
- **October 2020 - September 2022:** Ecological extinction and evolution: answers from ancient biomolecules (Research Executive Agency, Excellent Science, Marie Skłodowska-Curie Individual Fellowships; 204,000 EUR; grant: 885088 - Evolution - H2020-MSCA-IF-2019).
- **January - December 2019:** Exploring our world past: answers from a Romanian prehistoric site, Toplița de Vida (Alexander von Humboldt Return Fellowship; 6,500 EUR)
- **March 2016 - September 2018:** Alexander von Humboldt fellowship for postdoctoral research (90,750 EUR; grant ROU 1161809 HFST-P).

## RESEARCH GRANTS (COLLABORATOR/MEMBER OF THE RESEARCH TEAM)

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- **2019-2020:** High coverage palaeogenome of a Pleistocene cave bear (EASI-Genomics Grant, Principal Investigator Dr. Axel Barlow, University of Potsdam, Germany)
- **2016:** First network of show caves of Romania - a model for sustainable use of karst heritage (Cooperation program Swiss - Romania).
- **July 2014 – May 2015:** CAVEMONITOR - Monitoring human impact in show caves - a pilot project on monitoring protocols and remediation techniques to be implemented in Romanian show caves (EEA Grants, Norway)
- **2010-2013:** KARSTHIVES - Climate archives in karst - an integrated approach to the study and modeling of abrupt climate oscillations (National Authority for Scientific Research, Romania).
- **2007-2010:** Complex modeling of the pollutants transfer in the ecotone zone represented by epikarst (National Authority for Scientific Research, Romania).
- **2007-2010:** Modeling of the heavy metal pollution upon the aquifers by the complex study of the groundwater fauna and GRID system monitoring (National Authority for Scientific Research, Romania).

## GRANTS (COLLABORATOR/EXPERTISE)

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- **January–July 2015:** Quality in continuous professional training in caving and related fields (Sectoral Operational Programme Human Resources Development 2007-2013).
- **2006-2007:** EU acquis for sustainable forest management (Phare Programme, Coordinator CAPDD).
- **2006-2007:** Alternative methods for cave biodiversity conservation, Rosia-Remetea Area, Padurea Craiului Mountains (GEF Small Grant Programme, Coordinator CAPDD).
- **2006-2007:** The cave is not a garbage can (Romanian Environmental Fund Administration, Coordinator Romanian Association for Speleological Education).
- **2005-2006:** Catalogue of protected species in Romania (European Commission DG Environment programme, Coordinator European Environment Network).
- **2004-2005:** Speleological lessons (Romanian Environmental Fund Administration, Coordinator Romanian Association for Speleological Education).

## MAJOR COLLABORATIONS and TRAININGS

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- **Prof. Love Dalén**, Professor in Evolutionary Genetics, Department of Zoology, Stockholm University.
- **Prof. Dr. Michael Hofreiter**, Department of Biology, University of York, United Kingdom and Institute for Biochemistry and Biology, Faculty for Mathematics and Natural Sciences, Potsdam University: ancient DNA, palaeogenomics, population genomics.
- **Prof. Dr. Hervé Bocherens**, Department of Geoscience, Senckenberg Centre for Human Evolution and Palaeoenvironment (HEP), University of Tübingen: using stable isotopes to infer dietary patterns.
- **Prof. Dr. Boris Sket, Dr. Valerija Zakšek**, Department of Biology, Biotechnical Faculty, University of Ljubljana, Ljubljana, Slovenia: Research study concerning the molecular methods used for inferring *Niphargus* sp. (Crustacea) phylogeography.

- **Prof. Dr. Octavian Popescu, Dr. Beatrice Kelemen**, Institute of Interdisciplinary Research in Bio-Nano-Sciences/Molecular Biology Center, Babes-Bolyai University, Romania: Research study concerning the molecular methods for the analysis of genetic structure and connectivity of subterranean crustacean populations.
- **Dr. Frank Fiers**, Royal Belgian Institute of Natural Sciences, Belgium: Study of Harpacticoida (Copepoda).
- **Dr. Ladislav Mikó**, European Commission, DG Environment, Brussels, Belgium: Invertebrate fossils from cave sediments; cave protection and conservation.

## ORGANISATION OF SCIENTIFIC MEETINGS / INTERNATIONAL CONFERENCES

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- **September 2024:** Coordinator of the Organizing Committee, Frontiers Unbound: Exploring Extreme Environments, <https://institutulracovita.ro/extremenv/>
- **August 2014:** Member of the Organizing Committee, EuroSpeleo Protection Symposium, Baile Herculane, Romania.
- **September 2012:** Member of the Organizing Committee, EuroSpeleo Protection Symposium, Muotathal, Switzerland.
- **July 2006:** Member of the Organizing Committee, International Conference on Subterranean Biology, Cluj Napoca, Romania.

## OTHER INSTITUTIONAL RESPONSIBILITIES

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- **2018 - present:** guidance and support for undergraduate and PhD students in ancient DNA and data analysis, University of Potsdam, University of Stockholm.
- **Since May 2014:** member of the Scientific Council of the Natura 2000 site ROSCI 0062 Pădurea Craiului - Defileul Crișului Repede.
- **May 2008:** Member of the Organizing Committee, International Workshop: Impact of climate changes on subterranean life of the Carpathian Mountains: challenge for protection, Gârda de Sus, România.

## OTHER RESPONSIBILITIES

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- **Since 2023:** Expert for the **European Research Executive Agency, HORIZON MSCA-PF evaluation**
- **Since 2020:** Evaluator/Reporter for the **Belgian Science Policy Office, BELSPO, for the BRAIN-be 2.0 Program, BELGIAN RESEARCH ACTION THROUGH INTERDISCIPLINARY NETWORKS and the FED-tWIN Program**, Belgian programme of sustainable research cooperation between the Federal Scientific Institutions (FSI) and the Universities.
- **Since 2018:** Expert to conduct peer reviews of research projects, for the Ministry of Research and Innovation, Romania.
- **2012-2013:** Member of the Commission for Speleological Heritage (under the Romanian Ministry of Environment)
- **Since 2007:** Member of the European Cave Protection Commission (European Speleological Federation) (2009-2014, President)
- **Publisher-invited reviewer** for Environmental Earth Sciences, Diversity, International Journal of Speleology, Microbial Ecology, Molecular Ecology, Scientific Reports, Science of the Total Environment, Subterranean Biology, Turkish Journal of Zoology, Quaternary Research, Water.

## AWARDS/ELECTED MEMBERSHIPS

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- 1st November 2023 to 31st October 2025: Fellow of the EUTOPIA Young Leaders Academy.

## YOUTH EXCHANGE AND HUMANITARIAN PROGRAMS

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- **July 2010:** European youth perspective, Conference on biodiversity, Belgium.
- **July 2005:** International solidarity, Niger, Africa (organised by “Léo Lagrange” National Federation, France).

## MEMBERSHIPS/FOUNDER OF SCIENTIFIC SOCIETIES/FOUNDATIONS

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- **Since 2024:** Romanian Society of Bioinformatics (<https://rsbi.ro/despre/>)
- **Since 2021:** Society for Molecular Biology and Evolution (<https://www.smbe.org/smbe/>)
- **Since 2021:** Founder and member of the Emil G. Racoviță Foundation (<https://racovita-foundation.org/en/index.html>)
- **Since 2021:** Member of the sedaDNA Society (<https://sedadna.github.io/>)
- **Since 2020:** Member of the Marie Curie Alumni Association (<https://www.mariecuriealumni.eu/>).
- **Since 2018:** Member of Humboldt Club Romania.

## INVITED SPEAKER

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**Meleg I.N.** 2023. Exploring ancient biomolecules and cave sediment sequences for spatio-temporal palaeodynamics. Yorkshire Palaeo Group (YPG) meeting – Autumn 2023

**Meleg I.N.** 2013. Spatio-temporal trends in diversity of subsurface assemblages from vadose zone of the Carpathian Karst (Romania, Europe). National Cave and Karst Research Institute, Conference on Carbon and Boundaries in Karst, 7-11 January, Carlsbad, New Mexico, USA

## INVITED LECTURER

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Invited lecturer in Palaeoecology and Palaeogenetics for two master courses at the Stockholm University, Sweden:

2020 - 2022: BL7052, MSc course in Palaeoecology, Genetics and Human Prehistory (15 ECTS). Course organisers: Prof. Love Dalén and Prof. Anders Götherström.

2022: BL7053, MSc course in Ecological and evolutionary responses to climatic variation (15 ECTS). Course organiser: Prof. Rhonda Snook.

## SELECTED PUBLICATIONS

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### PEER REVIEWED in the last 10 years (\* - corresponding author)

- Feinauer, I.S., Lord, E., von Seth, J., Xenikoudakis, G., Ersmark, E., Dalén, L., **Meleg, I.N.\*** 2024. Heterochronous mitogenomes shed light on the Holocene history of the Scandinavian brown bear. *Scientific Reports* 14: 24917.
- Borda, D.R., Cociuba, I., Cruceru, N., Papp, D.C., **Meleg, I.N.\*** 2023. A Cost-Effective and Straightforward Approach for Conducting Short- and Long-Term Biomonitoring of Gold Mine Waters. *Water* 15:2883.
- Borda, D.R., Cociuba, I., Epure, L., Cruceru, N. & **Meleg, I.N.\*** 2022. The Interplay of Environment and Biota in Assessing the Freshwater Quality in Karst. *Diversity* 14:475. <https://doi.org/10.3390/d14060475>
- Rosengren, E., Acatrinei, A., Cruceru, N., Dehasque, M., Haliuc, A., Lord, E., Mircea, C.I., Rusu, I., Mármol-Sánchez, E., Kelemen, B.S. & **Meleg, I.N.\*** 2021. Ancient Faunal History Revealed by Interdisciplinary Biomolecular Approaches. *Diversity* 13:370. <https://doi.org/10.3390/d13080370>
- Dussex, N., Bergfeldt, N., de Anca Prado, V., Dehasque, M., Diez-del-Molino, D., Ersmark, E., Kanellidou, F., Larsson, P., Lemež, S., Lord, E., Mármol-Sánchez, E., **Meleg, I.N.**, Måsviken, J., Naidoo, T., Studerus, J., Vicente, M., von Seth, J., Götherström, A., Dalén, L. & Heintzman, P.D. 2021 Integrating multi-taxon palaeogenomes and sedimentary ancient DNA to study past ecosystem dynamics. *Proceedings of Royal Society B* 288: 20211252. doi: 10.1098/rspb.2021.1252

- Naito, Y.I., **Meleg, I.N.\***, Robu, M., Vlaicu, M., Drucker, D.G., Wißing, C., Hofreiter, M., Barlow, A. & Bocherens, H. 2020. Heavy reliance on plants for Romanian cave bears evidenced by amino acid nitrogen isotope analysis. *Scientific Reports* 10: 6612 <https://doi.org/10.1038/s41598-020-62990-0>
- Robu, M., Wynn, J., Puşcaş, C.M., **Meleg I.N.**, Martin, J.E. & Constantin, S. 2019. Palaeoecology and palaeoclimatic context of Romanian Carpathian MIS 3 cave bears using stable isotopes ( $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$ ). *Palaeogeography, Palaeoclimatology, Palaeoecology*, 534: 109288.
- Nitzu, E., Vlaicu, M., Giurginca, A., **Meleg, I.N.**, Popa, I., Nae, A. & Baba, Ş. 2018. Assessing preservation priorities of caves and karst areas using the frequency of endemic cave-dwelling species. *International Journal of Speleology*, 47: 43-52.
- Fortes, G.G., Grandal-d'Anglade, A., Kolbe, B., Fernandes, D., **Meleg, I.N.**, García-Vázquez, A., Pinto-Llona, A.C., Constantin, S., de Torres, T.J., Ortiz, J.E., Frischauf, C., Rabeder, G., Hofreiter, M. & Barlow, A. 2016. Ancient DNA reveals differences in behaviour and sociality between brown bears and extinct cave bears. *Molecular Ecology* 25:4907-4918.
- Meleg, I.N.**, Battes, K.P., Fiers, F. & Moldovan, O.T. 2015. Contrasting copepod community dynamics related to sampling strategies in the unsaturated zone of a karst aquifer. *Aquatic Ecology* 49: 549-560.
- Meleg, I.N.**, Năpăruş, M., Fiers, F., Meleg, H.I., Vlaicu, M. & Moldovan, O.T. 2014. The relationships between land cover, climate and cave copepod spatial distribution and suitability along the Carpathians. *Environmental Conservation* 41: 206-216.
- Meleg, I.N.**, Zakšek, V., Fišer, C., Kelemen, B.S. & Moldovan, O.T. 2013. Can environment predict cryptic diversity? The case of *Niphargus* inhabiting Western Carpathian groundwater. *PLoS ONE* 8(10): e76760. doi:10.1371/journal.pone.0076760.

## NON-PEER-REVIEWED PUBLICATIONS, OUTREACH AND BLOGS

Prehistoric animals offer new evolutionary hints, but riddles persist. Horizon Magazine. Read here: <https://projects.research-and-innovation.ec.europa.eu/en/horizon-magazine/prehistoric-animals-offer-new-evolutionary-hints-riddles-persist>

Herbivory in Carnivora: The Case of Emblematic Cave Bears. Springer Nature Communities. Read here: [https://communities.springernature.com/posts/herbivory-in-carnivora-the-case-of-emblematic-cave-bears?badge\\_id=scientific-reports-fab98101-e479-47fe-85ca-076057e200d9](https://communities.springernature.com/posts/herbivory-in-carnivora-the-case-of-emblematic-cave-bears?badge_id=scientific-reports-fab98101-e479-47fe-85ca-076057e200d9)

**Meleg I.N.** (ed) (2015) Book of Meziadului Cave. Centrul pentru Arii Protejate și Dezvoltare Durabilă Bihor, Oradea. 66 p (in RO, EN, HU).

**Meleg, I.N.** & Axinte I. (eds.) 2014. EuroSpeleo Forum, 9<sup>th</sup> Edition, 22-24 August, Baile Herculane, Romania, Book of abstracts, Belvedere Press, Oradea, 60 p.

**Meleg, I.N.** (2007) Booklet: The cave is not a garbage can. Romanian Environmental Fund Administration, Coordinator Romanian Association for Speleological Education.

<https://www.eurospeleo.eu/en/commissions-en/cave-protection.html>  
<http://www.cavedeclaration.eu/contact.php>

## REFERENCES

Prof. Hervé Bocherens, Head of Biogeology Research Group, University of Tübingen

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Prof. Love Dalén, Professor in Evolutionary Genetics, Department of Zoology, Stockholm University

Email: [Love.Dalen@nrm.se](mailto:Love.Dalen@nrm.se)

Prof. Michael Hofreiter, Professor for Evolutionary Adaptive Genomics, Institute for Biochemistry and Biology, Department of Mathematics and Natural Sciences, University of Potsdam

Email: [michael.hofreiter@uni-potsdam.de](mailto:michael.hofreiter@uni-potsdam.de)