

Anca Melintescu

CONTACT

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EDUCATION

- 10/1998 – 10/2003 PhD Nuclear Physics, University of Bucharest, Faculty of Physics, Thesis: *Interface Processes in Radionuclides Transfer in Environment (Magna cum laudae*, Supervisor Prof. Dr. Alexandru Berinde)
- 1995 - 1996 MSc Applied Nuclear Physics, University of Bucharest, Faculty of Physics
- 1990 – 1995 BSc Physics, University of Bucharest, Faculty of Physics

PROFESSIONAL EXPERIENCE

- 02/2024 onwards Senior Researcher I, Department of Life and Environmental Physics, Horia Hulubei National Institute for Physics and Nuclear Engineering, Bucharest, Romania
- 08/2011 – 02/2024 Senior Researcher II, Department of Life and Environmental Physics, Horia Hulubei National Institute for Physics and Nuclear Engineering, Bucharest, Romania
- 05/2005 – 08/2011 Senior Researcher III, Department of Life and Environmental Physics, Horia Hulubei National Institute for Physics and Nuclear Engineering, Bucharest, Romania
- 06/1999 – 05/2005 Scientific Researcher, Department of Life and Environmental Physics, Horia Hulubei National Institute for Physics and Nuclear Engineering, Bucharest, Romania
- 06/1998 – 06/1999 Junior Scientific Researcher, Department of Life and Environmental Physics, Horia Hulubei National Institute for Physics and Nuclear Engineering, Bucharest, Romania
- 11/1996 – 06/1998 Junior Scientific Researcher, Department of Applied Nuclear Physics, Horia Hulubei National Institute for Physics and Nuclear Engineering, Bucharest, Romania
- 03/2020 – 02/2024 Member of Scientific Council of Horia Hulubei National Institute for Physics and Nuclear Engineering
- 03/2024 - 02/2028 Member of Scientific Council of Horia Hulubei National Institute for Physics and Nuclear Engineering

FELLOWSHIPS

- 1998 EC Fellowship within the RODOS (Real time On line DecisiOn Support Systems for Nuclear Emergencies across Europe) Project at GSF-ISAR Munich, Germany.

1999	EC Fellowship within the RODOS (Real time On line DecisiOn Support Systems for Nuclear Emergencies across Europe) Project at GSF-ISAR Munich and FZK Karlsruhe, Germany.
2000	University of Mito, Japan and National Institute for Radiological Sciences, Chiba, Japan
2000 – 2002	Royal Society Grant within the project <i>The metabolism of tritium, carbon-14 and sulphur-35 in mammals: the investigation and development of holistic modeling approaches</i> , University of Nottingham, UK and Centre for Ecology and Hydrology Merlewood, Cumbria, UK
2002 – 2003	Marie Curie Fellowship in FP5 within the project <i>Transport of Materials in the Water, Air and Soil Environments</i> , University of Nottingham, UK
2006	Invited Researcher, Centre for Ecology and Hydrology, Lancaster, UK
2007	Invited Researcher, National Institute for Radiological Sciences, Chiba, Japan and Institute of Environmental, Sciences Rokkasho, Aomori, Japan
2010	Invited Researcher, National Institute for Radiological Sciences Chiba, Japan

AWARDS, GRANTS, TRAININGS

9/12/2019	Horia Hulubei Award of Romanian Academy for Studies regarding the Assessment of Organically Bound Tritium
22/12/2005	Serban Titeica Award of Horia Hulubei National Institute for Physics and Nuclear Engineering for Remarkable Scientific Contributions of Young Researchers
2002	Horia Hulubei Grant within the project <i>Dynamic Modeling of Tritium in Animal Products</i> , Horia Hulubei National Institute for Physics and Nuclear Engineering, Bucharest-Magurele, Romania
19 - 23/10/1998	International Training Course <i>Off-Site Emergency Planning and Response to Nuclear Accidents</i> within the project <i>European Radiation Protection and Training (ERPET)</i> , Pitesti, Romania; Certificate: Diploma of graduation.

SCIENTIFIC EXPERTISE

- Mathematical modelling for transfer processes of radionuclides in different ecosystems and associated data base;
- Dry and wet deposition of radionuclides;
- Development of advanced dynamic models based on process level analysis for transfer of tritium (^3H) and radiocarbon (^{14}C) in atmosphere, soil, plants, farm animals and birds, wild biota and birds, aquatic food chain, and human dosimetry; the models are based on agro-meteorology, plants physiology, animals metabolism and nutrition, fish bioenergetics;
- Tritium wash-out;
- Atmosphere – land interaction
- Nuclear risk assessment in environment;
- Radioecology;
- Nuclear meteorology

INTERNATIONAL CO-ORDINATED RESEARCH PROGRAMMES

11/2005 onwards	Consultant, International Atomic Energy Agency (IAEA), Vienna, Austria
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2021 – 2025	IAEA – MEREIA (MEthods for Radiological & Environmental Impact Assessment) Programme (https://gnssn.iaea.org/main/MEREIA/Pages/default.aspx) , Working Group 1 - Low Level Waste Repository.
2016 - 2019	IAEA – MODARIA II (MOdelling and DAta for Radiological Impact Assessment) Programme, Working Group 3 - Assessments and control of exposures to public and biota for planned releases to the environment (http://www-ns.iaea.org/projects/modaria/default.asp?l=116); Working Group 5 - Exposure and Effects to Biota
2012 – 2015	IAEA – MODARIA I (MOdelling and DAta for Radiological Impact Assessment) Programme (http://www-ns.iaea.org/projects/modaria/default.asp?l=116) within the following working groups: Working Group 5 - Uncertainty and variability analysis for assessments of radiological impacts arising from routine discharges of radionuclides; Working Group 7 – Harmonization and intercomparison of models for accidental tritium releases; Working Group 8 - Biota modelling: Further development of transfer and exposure models and application to scenarios
2009 – 2011	IAEA EMRAS II (Environmental Modelling for Radiation Safety) Programme, Working Group 7 – Tritium Accidents (http://www-ns.iaea.org/projects/emras/emras2/working-groups/working-group-seven.asp?s=8)
2003 – 2007	IAEA – EMRAS I (Environmental Modelling for Radiation Safety) Programme, Theme 1- Radioactive Release Assessment: Working Group 2 - Modeling of tritium and carbon-14 transfer to biota and man working group (http://www-ns.iaea.org/projects/emras/emras-tritium-wg.asp?s=8); Working Group 1 - Revision of IAEA Technical Report Series No. 364 “Handbook of parameter values for the prediction of radionuclide transfer in temperate environments” and Theme 3 – Protection of the Environment: Working Group 1 - Model validation for biota dose assessment

PROFESSIONAL

- **Associate Editor** at Journal of Environmental Radioactivity (Elsevier) (January 2021 – on going)
- **Reviewer:** Journal of Environmental Radioactivity (Elsevier), Applied Radiation and Isotopes (Elsevier), Environmental and Experimental Botany (Elsevier), Science of the Total Environment (Elsevier), Environmental Pollution (Elsevier), Fusion Engineering and Design (Elsevier), Journal of Fusion Energy (Springer), Journal of Radiological Protection (IOP Publishing), Scientific Reports (Nature), Radiation Research (Allen Press), Geostandards and Geoanalytical Research (Wiley – Blackwell), Radioprotection (Cambridge Journals), Fusion Science and Technology (American Nuclear Society), Radiation Dosimetry (Oxford Academic), International Journal of Radiation Biology (Informa Healthcare), Environmental Science and Pollution Research (Springer), Advances in Geosciences (Copernicus Publications –EGU), Frontiers in Energy Research / Nuclear Energy (Frontiers), Journal of Plant Breeding and Crop Science, (Academic Journals Inc.), International Journal of Environmental Research and Public Health (MDPI)

AG), International Journal of Environmental Science and Toxicology Research (Glare International Invention Publishing House).

- **Member of the Scientific Committee** of the Organically Bound Tritium Workshop (2017 – on going)
- **Scientific and Technical Consultant** for:
 - IAEA TECDOC “Harmonization and intercomparison of models for accidental tritium releases”, Report of Working Group 7 of the IAEA’s programme on Modelling and Data for Radiological Impact Assessment (MODARIA) Programme, IAEA-TECDOC-1991, International Atomic Energy Agency Vienna, ISBN 978-92-0- 144221-5, ISSN 1011-4289, 2022 (<https://www-pub.iaea.org/MTCD/Publications/PDF/TE-1991web.pdf>);
 - IAEA TECDOC “Transfer of tritium in the environment after accidental releases from nuclear facilities”, Report of Working Group 7 of the IAEA’s Environmental Modelling for Radiation Safety (EMRAS II) Programme, IAEA-TECDOC-1738, International Atomic Energy Agency Vienna, ISBN 978-92-0-102814-3, ISSN 1011-4289, 2014 (http://www-pub.iaea.org/MTCD/Publications/PDF/TE-1738_web.pdf)
- **Technical secretariat** for preparing the Minutes, Meeting Notes and the final TECDOC (TRANSFER OF TRITIUM IN THE ENVIRONMENT AFTER ACCIDENTAL RELEASES FROM NUCLEAR FACILITIES, Report of Working Group 7 of the IAEA’s Environmental Modelling for Radiation Safety (EMRAS II) Programme, IAEA-TECDOC-1738, International Atomic Energy Agency Vienna, 2014) of the Working Group 7 - “Tritium” Accidents in the frame of EMRAS II programme coordinated by IAEA (2009 – 2012)
- **Co-organiser** of Sixth Meeting of the EMRAS II Working Group 7, “Tritium” Accidents, Bucharest, Romania, 12 – 15 September 2011 (<https://www.nipne.ro/events.php>)
- **Co-organiser** of Eighth Meeting of EMRAS I Tritium & C-14 Working Group, Bucharest, Romania, 30 May – 1 June 2007 (<https://www.nipne.ro/events.php>)
- **Publications:** 41 peer-review journal articles (ISI quoted), 8 peer-review journal articles (non-ISI quoted), co-author of 6 books (international publishers), co-author of 3 book chapters (international publishers), 6 invited lectures and seminars abroad, 388 citations excluding self-citations (<https://www.webofscience.com/wos/woscc/citation-report/a6d465cb-e5bc-445c-81ea-1a5c35f35299-a98ae69d>); H-index: 13
- **Participation in scientific research projects as team member/investigator:** 7 international projects – 1 EURATOM project as principal investigator (Nuclear observations to improve Climate research and GHG emission estimates – 2024-2028), 12 national projects – 1 PCE project as principal investigator (Open problems in radiological risk assessment of tritium emissions including climate changes – 2017-2019)
- **Computing:** FORTRAN (Intel, Visual, Simply), Python, Mathematica, Model Maker, WOFOST
- **Languages:** English (fluent/bilingual), French (fluent), German (basic), Romanian (native)

Peer reviewed journal articles (ISI quoted):

➤ S. Barbosa, S. Chambers, W. Pawlak, K. Fortuniak, J. Paatero, A. Rottger, S. Rottger, X. Chen, A. Melintescu, D. Martin, D. Kikaj, A. Wenger, J. Barcelos Ramos, J. Hatakka, T.

Anttila, H. Aaltonen, N. Dias, M.E. Silva, J. Castro, H.K. Lappalainen, E. Azevedo, M. Kulmala (2025) Using nuclear observations to improve climate research and GHG emission estimates - the NuClim project. *EPJ Nuclear Sci. Technol.* **11**:14, <https://doi.org/10.1051/epjn/2025017>

➤ **A. Melintescu**, L. Patryl (2025) Interception and uptake by plants leaves of tritium from precipitation. *J. Environ. Radioact.* **285**: 107677, <https://doi.org/10.1016/j.jenvrad.2025.107677>

➤ **A. Melintescu** (2024) An improved dynamic model for application to biota. *J. Environ. Radioact.* **280**: 107560, <https://doi.org/10.1016/j.jenvrad.2024.107560>

➤ **A. Melintescu** (2024) Radiological Impact Assessment of Acute Tritium Releases In Environment – A Soil Dynamic Model *Fusion Sci. Technol.* **80** (3-4):266-275, <https://doi.org/10.1080/15361055.2023.2223723>

➤ Vives i Batlle, J., Biermans, G., Copplestone, D., Kryshev, A., **Melintescu, A.**, Mothersill, C., Sazykina, T., Seymour, C., Smith, K., Wood, M.D. (2022) Towards an ecological modelling approach for assessing ionising radiation impact on wildlife populations *J. Radiol. Protect.* **42**:020507

➤ N.A. Beresford, K. Beaugelin-Seiller, C.I. Barnett, J. Brown, C. Doering, M.P. Johansen, E. Caffrey, **A. Melintescu**, E. Ruedig, H. Vandenhove, J. Vives I Batle, M.D. Wood, T. L. Yankovich, D. Copplestone (2022) Ensuring robust radiological risk assessment for wildlife: insights from the International Atomic Energy Agency EMRAS and MODARIA programmes. *J. Radiol. Protect.* **42**:020512

➤ **A. Melintescu**, S.D. Chambers, J. Crawford, A.G. Williams, B. Zorila, D. Galeriu (2018) Radon-222 related influence on ambient gamma dose. *J. Environ. Radioact.* **189**:67-78

➤ D. Galeriu, **A. Melintescu** (2017) Relevance of night production of OBT in crops. *Fusion Sci. Technol.* **71**:595-599

➤ **A. Melintescu**, D. Galeriu (2017) Uncertainty of current understanding regarding OBT formation in plants. *J. Environ. Radioact.* **167**:134-149

➤ S.D. Chambers, D. Galeriu, A.G. Williams, **A. Melintescu**, A.D. Griffiths, J. Crawford, L. Dyer, M. Duma, B. Zorila (2016) Atmospheric stability effects on potential radiological releases at a nuclear research facility in Romania: Characterising the atmospheric mixing state. *J. Environ. Radioact.* **154**:68-82

➤ **A. Melintescu**, D. Galeriu, S. Diabaté, S. Strack (2015) Preparatory steps for a robust dynamic model for OBT dynamics in agricultural crops. *Fusion Sci. Technol.* **67** (3):479-482

➤ D. Galeriu, **A. Melintescu** (2015) Progresses in tritium accident modelling in the frame of IAEA EMRAS II. *Fusion Sci. Technol.* **67** (2):343-348

➤ D. Galeriu, **A. Melintescu**, M. Duma, B. Zorila, A. Gheorghiu (2014) Nuclear Meteorology at IFIN-HH. *Romanian J. Phys.* **59**:999-1011

➤ D. Galeriu, **A. Melintescu** (2014) Carbon-14 dynamics in rice: an extension of the ORYZA2000 model. *Radiat. Environ. Biophys.* **53** (1):187-202

➤ D. Galeriu, **A. Melintescu**, S. Strack, M. Atarashi-Andoh, S.B. Kim (2013) An overview of organically bound tritium experiments in plants following a short atmospheric HTO exposure. *J. Environ. Radioactiv.* **118**:40-56.

➤ **A. Melintescu**, D. Galeriu, S. Tucker, P. Kennedy, F. Siclet, K. Yamamoto, S. Uchida (2013) Carbon-14 transfer into potato plants following a short exposure to an atmospheric ¹⁴CO₂ emission: observations and model predictions. *J. Environ. Radioactiv.* **115**:183-191.

- **A. Melintescu**, D. Galeriu, S.B. Kim (2011) Tritium dynamics in large fish – a model test. *Radioprotection* **46** (6):S431-S436.
- D. Galeriu, **A. Melintescu** (2011) A model approach for tritium dynamics in wild animals. *Radioprotection* **46** (6):S445-S451.
- **A. Melintescu**, D. Galeriu (2011) Exchange velocity approach and the role of photosynthesis for tritium transfer from atmosphere to plants. *Fusion Sci. Technol.* **60** (3):1179 – 1182.
- D. Galeriu, **A. Melintescu** (2011) Research and development of environmental tritium modelling. *Fusion Sci. Technol.* **60** (4):1232 – 1237.
- **A. Melintescu**, D. Galeriu (2011) Dynamic model for tritium transfer in an aquatic food chain. *Radiat. Environ. Biophys.* **50**:459–473.
- T.L. Yankovich, S.B. Kim, F. Baumgärtner, D. Galeriu, **A. Melintescu**, K. Miyamoto, M. Saito, F. Siclet and P. Davis (2011) Measured and modelled tritium concentrations in freshwater Barnes mussels (*Elliptio complanata*) exposed to an abrupt increase in ambient tritium levels. *J. Environ. Radioactiv.* **102**:26-34.
- D. Galeriu, **A. Melintescu**, A. Stochioiu, D. Nicolae, I. Balin (2011) Radon, as a tracer for mixing height dynamics – an overview and RADO perspectives. *Romanian Rep. Phys.* **63** (1):115-127
- D.V. Vamanu, D.S. Slavnicu, D.C. Galeriu, V.T. Acasandrei, D. Gheorghiu, **A. Melintescu** (2011) Decommissioning research reactors: a case of a reference accident scenario. *Romanian Rep. Phys.* **63** (1):43-60
- **A. Melintescu**, D. Galeriu (2010) Energy metabolism used as a tool to model the transfer of ^{14}C and ^3H in animals. *Radiat. Environ. Biophys.* **49** (4):657–672
- D. Galeriu, **A. Melintescu** (2010) Retention of tritium in reference persons: a metabolic model. Derivation of parameters and application of the model to the general public and to workers. *J. Radiol. Protect.* **30** (3):445-468
- H. Takeda, S. Fuma, K. Miyamoto, K. Yanagisawa, N. Ishii, I. Kawaguchi, **A. Melintescu**, D. Galeriu (2010) Comparative biokinetics of radiocarbon ingested as compounds or foods in rats. *Health Phys.* **99** (5):668-673
- H. Takeda, S. Fuma, K. Miyamoto, K. Yanagisawa, N. Ishii, I. Kawaguchi, K. Doi, **A. Melintescu**, D. Galeriu (2009) Biokinetics of radiocarbon ingested as a food in rats. *Health Phys.* **96** (5):587-593
- D. Galeriu, **A. Melintescu**, N. A. Beresford, H. Takeda, N.M.J. Crout (2009) The dynamic transfer of ^3H and ^{14}C in mammals – a proposed generic model. *Radiat. Environ. Biophys.* **48**:29–45
- J. Koarashi, P. A. Davis, D. Galeriu, **A. Melintescu**, M. Saito, F. Siclet, S. Uchida (2008) Carbon-14 transfer into rice plants from a continuous atmospheric source: Observations and model predictions. *J. Environ. Radioactiv.* **99**:1671-1679
- **A. Melintescu**, D. Galeriu (2008) Tritium transfer in pigs – a model test. *Fusion Sci. Technol.* **54** (1):269-272
- D. Galeriu, P. Davis, W. Raskob, **A. Melintescu** (2008) Recent progresses in tritium radioecology and dosimetry. *Fusion Sci. Technol.* **54** (1):237-242
- **A. Melintescu**, D. Galeriu, H. Takeda (2007) Reassessment of tritium dose coefficients for general public. *Radiat. Protect. Dosim.* **127** (1-4):153-157

- D. Galeriu, **A. Melintescu**, N.A. Beresford, N.M.J. Crout, R. Peterson, H. Takeda (2007) Modelling H-3 and C-14 transfer to farm animals and their products under steady state conditions. *J. Environ. Radioactiv.* **98**:205-217
- D. Slavnicu, D. Galeriu, D. Gheorghiu, **A. Melintescu**, E. Slavnicu (2007) RODOS expert module for the assessment of tritium impact in aquatic environment. *Romanian Rep. Phys.* **59** (3):861-870
- D. Galeriu, R. Heling, **A. Melintescu** (2005) The dynamic of tritium – including OBT- in the aquatic food chain. *Fusion Sci. Technol.* **48** (1):779-782
- D. Galeriu, H. Takeda, **A. Melintescu**, A. Trivedi (2005) Energy Metabolism and Human Dosimetry of Tritium. *Fusion Sci. Technol.* **48** (1):795-798
- D. Galeriu, N.A. Beresford, H. Takeda, **A. Melintescu**, N.M.J. Crout (2003) Towards a model for the dynamic transfer of tritium and carbon in mammals. *Radiat. Protect. Dosim.* **105** (1-4): 387-390
- D. Galeriu, N. M. J. Crout, **A. Melintescu**, N. A. Beresford, S. R. Peterson, M. van Hess (2001) A metabolic derivation of tritium transfer factors in animal products. *Radiat. Environ. Biophys.* **40** (4): 325-334

Books

- Aulainger, C., Galeriu, D., Halsall, C., Hart, D., Korolevych, V., Kwamena, N.-O., Le Dizes-Maurel, S., **Melintescu, M.A.**, Ota, M., Patryl, L., Proehl, G., Shaw, P., Walker, J., Yankovich, T., HARMONIZATION AND INTERCOMPARISON OF MODELS FOR ACCIDENTAL TRITIUM RELEASES TO THE ATMOSPHERE, Report of Working Group 7, Modelling and Data for Radiological Impact Assessments (MODARIA) Programme, IAEA-TECDOC-1991, International Atomic Energy Agency Vienna, ISBN 978-92-0- 144221-5, ISSN 1011-4289, 2022, 151 pages, available at <https://www-pub.iaea.org/MTCD/Publications/PDF/TE-1991web.pdf>
- F. Alonzo, C.L. Barnett, K. Beaugelin-Seiller, N.A. Beresford, G. Biermans, C. Bradshaw, J. Brown, E. Caffrey, D. Copplestone, C. Halsall, D.C. Howard, M. Johansen, A. Kryshev, **M.A. Melintescu**, C. Mothersill, E. Ruedig, T. Sazykina, C. Seymour, K. Smith, J. Vives i Batlle, M. Wood, RADIOLOGICAL ENVIRONMENTAL PROTECTION OF WILDLIFE: MODELLING THE EXPOSURE AND EFFECTS, Joint summary report of Working Groups 8 and 9 (MODARIA I) and Working Group 5 (MODARIA II), IAEA-TECDOC-1986 International Atomic Energy Agency Vienna, ISBN-978-92-0-138121-7, ISSN 1011-4289, 2021, 76 pages, available at <https://www-pub.iaea.org/MTCD/Publications/PDF/TE-1986web.pdf>
- M. Atarashi-Andoh, V. Berkovskyy, P. Cortes, P. Davis, J. Duran, D. Galeriu, P. Guetat, S.B. Kim, V. Korolevych, F. Lamego Simões Filho, S. Le Dizès, **A. Melintescu**, H. Nagai, M. Ota, L. Patryl, S.-R. Peterson, F. Siclet, S. Strack, TRANSFER OF TRITIUM IN THE ENVIRONMENT AFTER ACCIDENTAL RELEASES FROM NUCLEAR FACILITIES, Report of Working Group 7 of the IAEA's Environmental Modelling for Radiation Safety (EMRAS II) Programme, IAEA-TECDOC-1738, International Atomic Energy Agency Vienna, ISBN 978-92-0-102814-3, ISSN 1011-4289, 2014, 264 pages, available at http://www-pub.iaea.org/MTCD/Publications/PDF/TE-1738_web.pdf.
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D.-K. Keum, P. Macdonald, A. Maksimenko, **A.-M. Melintescu**, S. Mihok, H. Mulye, A. Muzalevskaya, L. Newsome, G. Olyslaegers, I. Outola, M. Phaneuf, G. Pröhl, J. Ryan, M. Shishulina, L. Sweeck, K. Tagami, D. Telleria, K. Thiessen, J. Twining, S. Uchida, H. Vandenhove, A. Vlaschenko, J. Wannijn, C. Wells, N. Willey, R. Wilson, M.D. Wood, T. Yankovich, HANDBOOK OF PARAMETER VALUES FOR THE PREDICTION OF RADIONUCLIDE TRANSFER TO WILDLIFE, Technical Report Series no. 479, International Atomic Energy Agency Vienna, ISBN 978-92-0-100714-8, ISSN 0074-1914, 2014, 211 pages, available at http://www-pub.iaea.org/MTCD/Publications/PDF/Trs479_web.pdf.

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