

CURRICULUM VITAE

Maia Avtandilashvili, PhD

U.S. Transuranium and Uranium Registries
College of Pharmacy, Washington State University
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EDUCATION

08/2006 – 12/2011, PhD in Applied Physics (Emphasis on Health Physics)

Idaho State University (Pocatello, Idaho, USA): *“Evaluation of the proposed revisions to The ICRP human respiratory tract model using the human data associated with occupational inhalation exposure to refractory PuO₂ aerosols”*

09/1979 – 06/1984, Diploma with Honors in Physics (Equivalent to M.S. degree)

I. Javakhishvili Tbilisi State University, Department of Physics (Tbilisi, Rep. of Georgia): *“Cosmogenic and anthropogenic ¹⁴C measurements in organic samples”*

PROFESSIONAL EXPERIENCE

07/2017 – present, Assistant Research Professor

U.S. Transuranium and Uranium Registries, College of Pharmacy, Washington State University (Richland, WA, USA)

01/2012 – 07/2017, Research Associate

U.S. Transuranium and Uranium Registries, College of Pharmacy, Washington State University (Richland, WA, USA)

08/2006 – 01/2012, Research Assistant

Environmental Assessment Laboratory (EAL), Health Physics Program, Idaho State University (Pocatello, ID, USA)

08/1998 – 08/2006, Senior Engineer-Programmer

C-14 and Low-Level Radioactivity Laboratory, Department of Physics, I. Javakhishvili Tbilisi State University (Tbilisi, Rep. of Georgia)

01/1987 – 08/1998, Senior Engineer

C-14 and Low-Level Radioactivity Laboratory, Department of Physics, I. Javakhishvili Tbilisi State University (Tbilisi, Rep. of Georgia)

10/1984 – 01/1987, Research Assistant

C-14 and Low-Level Radioactivity Laboratory, Department of Physics, I. Javakhishvili Tbilisi State University (Tbilisi, Rep. of Georgia)

TRAINING AND PROFESSIONAL DEVELOPMENT

- 10th European Radiation Dosimetry Group (EURADOS) Winter School “Internal Dosimetry for Radiation Protection and Medicine”, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, March 2, 2017

- Radiation Epidemiology and Dosimetry Course, National Cancer Institute, National Institutes of Health (NIH), Rockwell, MD, May 18-25, 2015
- Professional Development School in Internal Dosimetry, Health Physics Society, Idaho State University, Pocatello, ID, June 24-26, 2010
- International Atomic Energy Agency On-the-Job Training in Analytical Chemistry, Germany: Institute for Radiation Protection, BfS, Berlin; Institute for Radiation Hygiene, BfS, Munich; Institute for Chemical Research, Freiburg; Institute for Hydrology, BfG, Koblenz; Institute for Fishery Ecology, BFAFi, Hamburg; September 27 – December 18, 1999
- International Atomic Energy Agency Advanced Training Course “Quality Management in Environmental Applications of Nuclear Analytical Techniques”, Karlsruhe Research Center, Karlsruhe, Germany, August 23 – September 3, 1999

TEACHING PORTFOLIO

Guest Lecturer

- WSU Graduate Certificate Program in Radiation Protection (GCPRP)
Internal and Environmental Dosimetry class – ENVR_SCI 523

PROFESSIONAL SERVICE

Editorial Board Member

- Austin Biometrics and Biostatistics, 2014 – 2017

Guest Editor

- Health Physics, Special Issue “USTUR: Five Decade Follow-up of Plutonium and Uranium Workers”
2017 – 2018

Ad hoc Reviewer

- International Journal of Radiation Biology, 2013
- Journal of Hazardous Materials, 2016
- Journal of Exposure Science and Environmental Epidemiology, 2016

PROFESSIONAL AFFILIATIONS

- Health Physics Society, 2007 – present
- Georgian Health Physics Association, 2007 – present
- Columbia Chapter Health Physics Society, 2015 – present
- European Radiation Dosimetry Group (EURADOS), Working Group 7 on Internal Dosimetry,
2017 – present

HONORS AND AWARDS

- International Atomic Energy Agency Fellowship GEO/99004R, 1999
- Health Physics Society (HPS) Burton J. Moyer Fellowship award, 2007 – 2008
- Health Physics Society (HPS) Student Travel Grant awards for participation in HPS 52nd through 56th Annual Meetings, 2007 – 2011

PARTICIPATION IN INTERNATIONAL RESEARCH PROJECTS

2007 – 2009

US Civilian Research and Development Foundation & Georgian Research and Development Foundation

Tbilisi Radon Assessment Initiative Project GEG1-3343-TB-06

2003 – 2006

Idaho State University, USA & Tbilisi State University, Rep. of Georgia

Independent Radiological Monitoring Program

2002 – 2004

US Department of Energy

Advanced Accelerator Applications – Dose Conversion Coefficients

1999

Federal Research Office for Fishery, Germany

Research Cruise on the North and Baltic Seas

International Atomic Energy Agency

Collection and gamma spectrometric analysis of sediment and biota samples from river Kura and the south-west Caspian sea, IAEA Technical Contract #10607

1997 – 2003

International Atomic Energy Agency

Marine Environmental Assessment of the Black Sea Region, IAEA Technical Cooperation Regional Project RER/2/003

1984 – 1993

Bratislava State University, Slovakia & Tbilisi State University, Rep. of Georgia

Investigation of cosmogenic and anthropogenic variations of C-14 concentrations in atmospheric CO₂ and biota samples

PEER-REVIEWED JOURNAL PUBLICATIONS

10. **Avtandilashvili M**, Tolmachev SY. Improving prediction of skeleton weight from body height. *Health Physics* **2018** (submitted).
9. Breustedt B, **Avtandilashvili M**, McComish SL, Tolmachev SY. USTUR Case 0846: Modeling americium biokinetics after intensive decorporation therapy. *Health Physics* **2018** (in preparation).
8. Dumit S, **Avtandilashvili M**, Tolmachev SY. Evaluating plutonium intake and radiation dose following extensive chelation treatment. *Health Physics* **2018** (submitted).
7. **Avtandilashvili M**, Dumit S, Tolmachev SY. USTUR Whole-Body Case 0212: 17-year follow-up of plutonium contaminated wound. *Radiation Protection Dosimetry* 178(2): 160-169; **2018**.
6. Tolmachev SY, Nielsen CE, **Avtandilashvili M**, Puncher M, Martinez F, Thomas EM, Miller FL, Morgan WF, Birchall A. The Mayak Worker Dosimetry System (MWDS-2013): Soluble plutonium retention in the lungs of an occupationally exposed USTUR case. *Radiation Protection Dosimetry* 176(1-2): 45-49; **2017**.
5. **Avtandilashvili M**, Puncher M, McComish SL, Tolmachev SY. US Transuranium and Uranium Registries case study on accidental exposure to uranium hexafluoride. *Journal of Radiological Protection* 35(1): 129-151; **2015**.
4. **Avtandilashvili M**, Brey R, Birchall A. Application of Bayesian inference to the bioassay data from long-term follow-up of two refractory PuO₂ inhalation cases. *Health Physics* 104(4): 394-404; **2013**.
3. **Avtandilashvili M**, Brey R, James A.C. Maximum likelihood analysis of bioassay data from long-term follow-up of two refractory PuO₂ inhalation cases. *Health Physics* 103(1): 70-79; **2012**.
2. Pagava S, Rusetski V, Robakidze Z, Farfan EB, Dunker RE, Popp JL, **Avtandilashvili M**, Wells DP, Donnelly EH. Initial Investigation of ²²²Rn in the Tbilisi Urban Environment. *Health Physics* 95(6): 761-765; **2008**.
1. Burchuladze AA, Pagava SV, Togonidze GI, **Avtandilashvili MV**. Radiocarbon and 11-year variations of cosmic rays. *Radiocarbon* 35(3): 347-350; **1993**.

PEER-REVIEWED CONFERENCE ABSTRACTS

14. Tabatadze G, **Avtandilashvili M**, Tolmachev SY. Plutonium in tissues of occupationally exposed individuals. Abstract of Podium Presentation submitted to 62nd Annual Meeting of US Health Physics Society, Raleigh (NC), July 9-13, 2017. *Health Physics* 113(Suppl 1): S94-S95; **2017**.
13. Dumit S, **Avtandilashvili M**, Tolmachev SY. Enhancement of plutonium excretion following late Ca-EDTA/DTPA treatment. Abstract of Podium Presentation submitted to 62nd Annual Meeting of US Health Physics Society, Raleigh (NC), July 9-13, 2017. *Health Physics* 113(Suppl 1): S95-S96; **2017**.
12. **Avtandilashvili M**, Tolmachev SY. Updating ICRP 70 skeleton weight vs. body height equation. Abstract of Podium Presentation submitted to 61st Annual Meeting of US Health Physics Society, Spokane (WA), July 17-21, 2016. *Health Physics* 111(Suppl 1): S40; **2016**.
11. Breustedt B, **Avtandilashvili M**, McComish SL, Tolmachev SY. USTUR Case 0846: Modeling americium biokinetics after intensive decorporation therapy. Abstract of Podium Presentation submitted to 61st Annual Meeting of US Health Physics Society, Spokane (WA), July 17-21, 2016. *Health Physics* 111(Suppl 1): S58-S59; **2016**.
10. Dumit S, **Avtandilashvili M**, Breustedt B, Tolmachev SY. USTUR Case 0785: Modeling Pu decorporation following complex exposure. Abstract of Podium Presentation submitted to 61st

Annual Meeting of US Health Physics Society, Spokane (WA), July 17-21, 2016. Health Physics 111(Suppl 1): S41; **2016**.

9. **Avtandilashvili M**, Puncher M, McComish SL, Tolmachev SY. Modeling uranium hexafluoride inhalation. Abstract of Podium Presentation submitted to 60th Annual Meeting of US Health Physics Society, Indianapolis (IN), July 12-16, 2016. Health Physics 109(Suppl 1): S58; **2015**.
8. **Avtandilashvili M**, McComish SL, Tolmachev SY. USTUR whole-body case 0212: Testing NCRP wound model. Abstract of Podium Presentation submitted to 59th Annual Meeting of US Health Physics Society, Baltimore (MD), July 13-17, 2016. Health Physics 107(Suppl 1): S108-S109; **2014**.
7. **Avtandilashvili M**, Brey R, James AC. Maximum likelihood analysis of bioassay data from long-term follow-up of two refractory PuO₂ inhalation cases. Abstract of Podium Presentation submitted to 57th Annual Meeting of US Health Physics Society, Sacramento (CA), July 22-26, 2012. Health Physics 103(Suppl 1): S80; **2012**.
6. **Avtandilashvili M**, Brey R, James AC. Validation of proposed revisions to ICRP Human Respiratory Tract Model using human data associated with an acute inhalation of refractory PuO₂. Abstract of Poster Presentation submitted to 56th Annual Meeting of US Health Physics Society, West Palm Beach (FL), June 26-30, 2011. Health Physics 101(Suppl 1): S13; **2011**.
5. **Avtandilashvili M**, James AC, Birchall A, Puncher M, Gregatto D, Brey R. Bayesian analysis of bioassay and autopsy data from 18-y follow-up of an acute accidental inhalation of refractory PuO₂. Abstract of Poster Presentation submitted to 55th Annual Meeting of US Health Physics Society, Salt Lake City (UT), June 27 – July 1, 2010. Health Physics 99(Suppl 1): S10; **2010**.
4. **Avtandilashvili M**, Brey R, James AC, Birchall A. Inhalation of highly insoluble plutonium: Case studies from the rocky flats plutonium fire. Abstract of Poster Presentation submitted to 54th Annual Meeting of US Health Physics Society, Minneapolis (MN), July 12-16, 2009. Health Physics 97(Suppl 1): S13; **2009**.
3. Pagava S, Rusetski V, Kutelia G, Shubitidze N, Dunker R, Farfan E, Popp J, Harris J, Wells D, **Avtandilashvili M**. Review of radon assessment studies in the city of Tbilisi, Republic of Georgia. Abstract of Poster Presentation submitted to 54th Annual Meeting of US Health Physics Society, Minneapolis (MN), July 12-16, 2009. Health Physics 97(Suppl 1): S6; **2009**.
2. **Avtandilashvili M**, Butikofer T, Matthews T, Cummings R. "Scan Rates" – a form-base Excel[®] spreadsheet to model the detectability of surface radioactive contamination. Abstract of Poster Presentation submitted to 53rd Annual Meeting of US Health Physics Society, Pittsburgh (PA), July 13-17, 2008. Health Physics 95(Suppl 1): S3-S4; **2008**.
1. **Avtandilashvili M**, Dunker R, Pagava S, Rusetski V. Radiation safety standards in practice: Independent radiological monitoring program in Georgia. Abstract of Poster Presentation submitted to 52nd Annual Meeting of US Health Physics Society, Portland (OR), July 7-12, 2007. Health Physics 93(Suppl 1): S4-S5; **2007**.

CONFERENCE PAPERS

4. **Avtandilashvili M**, Baratashvili D, Mazmanidi N, Pagava S, Robakidze Z, Rusetski V, Togonidze G. Monitoring of the radioecological situation in marine and coastal environment of Georgia. In:

Radiation Safety Problems in the Caspian Region. NATO Science Series IV: Earth and Environmental Sciences; Dordrecht/Boston/London; 41: 5-12; **2005**.

3. **Avtandilashvili M**, Pagava S, Robakidze Z, Rusetski V, Togonidze G. The professional-oriented regional radioecological collaboration of Southern Caucasian states. In: Radiation Safety Problems in the Caspian Region. NATO Science Series IV: Earth and Environmental Sciences; Dordrecht/Boston/London; 41: 225-229; **2005**.
2. Pagava S, **Avtandilashvili M**, Kakashvili P, Kharashvili G, Robakidze Z, Rusetski V, Togonidze G, Baratashvili D. Environmental radioactivity investigations in the Georgian subtropical region. In: Study of Environmental Change Using Isotope Techniques. Proceedings of an International Atomic Energy Agency conference. Vienna: International Atomic Energy Agency; IAEA-CSP-13/P; 480-481; **2002**.
1. **Avtandilashvili M**, Burchuladze (jr) A, Pagava S, Robakidze Z, Rusetski V, Togonidze G. Radiological background of the Georgian part of the Black Sea. In: Marine Pollution. Proceedings of International Atomic Energy Agency symposium held in Monaco, 5-9 October 1998; Vienna: International Atomic Energy Agency; IAEA-TECDOC-1094; 338-339; **1999**.

CONFERENCE PRESENTATIONS

INVITED PRESENTATIONS

4. US Transuranium and Uranium Registries: Update. Georgian National Academy of Sciences' Committee on Nuclear Energy and Radiation Safety Meeting, Tbilisi, Rep. of Georgia, September 21, **2016**.
3. US Transuranium and Uranium Registries: Overview. Georgian National Academy of Sciences' Committee on Nuclear Energy and Radiation Safety Meeting, Tbilisi, Rep. of Georgia, December 24, **2015**.
2. US Transuranium and Uranium Registries: Overview. Columbia Chapter of Health Physics Society Meeting, Kennewick, WA, November 19, **2015**.
1. Modeling uranium hexafluoride inhalation. Columbia Chapter of Health Physics Society Meeting, Kennewick, WA, November 19, **2015**.

PODIUM PRESENTATIONS

13. Analysis of 'high-fired' plutonium oxide in tissues of exposed workers. 6th Asia-Pacific Symposium on Radiochemistry, Jeju Island, Korea, September 17-22, **2017**.
12. Plutonium in tissues of occupationally exposed individuals. 62nd Annual Meeting of the Health Physics Society, Raleigh, NC, July 9-13, **2017**.
11. Enhancement of plutonium excretion following late Ca-EDTA/DTPA treatment. 62nd Annual Meeting of the Health Physics Society, Raleigh, NC, July 9-13, **2017**.
10. USTUR research: Land of opportunity. Annual Meeting of the European Radiation Dosimetry Group (EURADOS), Karlsruhe, Germany, February 27 – March 3, **2017**. †
9. Updating ICRP 70 skeleton weight vs body height equation. 61st Annual Meeting of the Health Physics Society, Spokane, WA, July 17-21, **2016**. †

8. USTUR Case 0785: Modeling Pu decorporation following complex exposure. 61st Annual Meeting of the Health Physics Society, Spokane, WA, July 17-21, **2016**.
7. USTUR Case 0846: Modeling americium biokinetics after intensive decorporation therapy. 61st Annual Meeting of the Health Physics Society, Spokane, WA, July 17-21, **2016**.
6. Modeling uranium hexafluoride inhalation. 60th Annual Meeting of the Health Physics Society, Indianapolis, IN, July 12-16, **2015**. †
5. USTUR whole-body Case 0212: testing NCRP wound model. 59th Annual Meeting of the Health Physics Society, Baltimore, MD, July 13-17, **2014**. †
4. USTUR case study on accidental exposure to uranium hexafluoride. 11th International Conference on Health Effects of Incorporated Radionuclides, Berkeley, CA, October 13-17, **2013**. †
3. Maximum likelihood analysis of bioassay data from long-term follow-up of two refractory PuO₂ inhalation cases. 57th Annual Meeting of the Health Physics Society, Sacramento, CA, July 22-26, **2012**. †
2. Monitoring of the radioecological situation in marine and coastal environment of Georgia. NATO Advanced Research Workshop on Radiation Safety Problems in the Caspian Region, Baku, Azerbaijan, September 11-14, **2003**.
1. The professional-oriented regional radioecological collaboration of Southern Caucasian states. NATO Advanced Research Workshop on Radiation Safety Problems in the Caspian Region, Baku, Azerbaijan, September 11-14, **2003**.

† **Presented in person**

POSTER PRESENTATIONS

14. Chelation treatment after occupational exposure to plutonium. WSU College of Pharmacy Research Day, Spokane, WA, August 12, **2016**.
13. Modeling Pu decorporation therapy following occupational exposure. Brazilian Graduate Student Conference (BRASCON), Harvard University, Cambridge, MA, March 12-13, **2016**.
12. Uncertainty analysis on lung doses for US nuclear workers. 11th International Conference on Health Effects of Incorporated Radionuclides, Berkeley, CA, October 13-17, **2013**. †
11. The U.S. Transuranium and Uranium Registries: a unique human data resource. 58th Annual Meeting of the Radiation Research Society, San Juan, Puerto Rico, September 30 – October 3, **2012**.
10. The United States Transuranium and Uranium Registries (USTUR). WSU College of Pharmacy Research and Scholarship Day, Spokane, WA, August 10, **2012**.
9. Maximum likelihood analysis of refractory PuO₂ inhalation cases. WSU College of Pharmacy Research and Scholarship Day, Spokane, WA, August 10, **2012**. †
8. Validation of proposed revisions to ICRP Human Respiratory Tract Model using human data associated with an acute inhalation of refractory PuO₂. 56th Annual Meeting of the Health Physics Society, West Palm Beach, FL, June 26-30, **2011**. †

7. Bayesian analysis of bioassay and autopsy data from 18-y follow-up of an acute accidental inhalation of refractory PuO₂. 55th Annual Meeting of the Health Physics Society, Salt lake City, UT, June 27- July 1, **2010**. †
6. Inhalation of highly insoluble plutonium: Case studies from the rocky flats plutonium fire. 54th Annual Meeting of the Health Physics Society, Minneapolis, MN, July 12-16, **2009**. †
5. Review of radon assessment studies in the city of Tbilisi, Republic of Georgia. 54th Annual Meeting of the Health Physics Society, Minneapolis, MN, July 12-16, **2009**.
4. "Scan Rates" – a form-base Excel® spreadsheet to model the detectability of surface radioactive contamination. 53rd Annual Meeting of the Health Physics Society, Pittsburgh, PA, July 13-17, **2008**. †
3. Radiation safety standards in practice: Independent radiological monitoring program in Georgia. 52nd Annual Meeting of the Health Physics Society, Portland, OR, July 7-12, **2007**. †
2. Environmental radioactivity investigations in the Georgian subtropical region. International Conference on Study of Environmental Change using Isotope Techniques, Vienna, Austria, April 23-27, **2002**.
1. Radiological background of the Georgian part of the Black Sea. International Symposium on Marine Pollutions, Monte-Carlo, Monaco, October 5-9, **1998**.

† Presented in person