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## Education

2006 – 2011	Ph.D. in Physics with emphasis on Health Physics	Idaho State University
1979 – 1984	Diploma with Honor in Nuclear Physics (Equivalent to M.S. degree)	Tbilisi State University (Rep. of Georgia)

## Research Experience

Jan 2012 – Present	Washington State University, College of Pharmacy, USTUR <ul style="list-style-type: none"><li>• <i>Research Associate</i></li><li>• Population of the health physics database: entering of exposure records and industrial hygiene data, standardization of bioassay and in-vivo counting results</li><li>• Analysis of individual USTUR cases in support of internal dosimetry and radiation protection</li><li>• Preparation and publishing of scientific papers</li></ul>
Aug 2006 – Dec 2011	Idaho State University (ISU), Health Physics Program ISU/USTUR Internal Dosimetry Research Team <ul style="list-style-type: none"><li>• <i>Research Assistant</i></li><li>• Modeling the USTUR Tissue Donors' bioassay data using the internal dosimetry software IMBA Professional Plus</li><li>• Testing the Internal Dosimetry Biokinetic Models against human data</li><li>• Evaluating the uncertainties in internal dose estimates using the software tool: IMBA Uncertainty Analyzer</li></ul>
Aug 2006 – Dec 2011	Idaho State University, Environmental Assessment Laboratory (EAL) <ul style="list-style-type: none"><li>• <i>Research Assistant</i></li><li>• Preparation and analysis of environmental samples for: Alpha/Beta, Gamma, and Tritium detection</li><li>• Operation, calibration and maintenance of gamma-spectroscopy detectors, gas-flow proportional counters, and liquid scintillation counters</li><li>• Generation of Data Reports and Calibration Reports</li><li>• Development and revision of laboratory procedures</li><li>• Participation in Laboratory Quality Assurance / Quality Control (QA/QC) Programs</li></ul>
Jan 1994 – Aug 2006	Tbilisi State University, C-14 and Low-Level Radioactivity Laboratory <ul style="list-style-type: none"><li>• <i>Research Associate</i></li><li>• Operation and calibration of High Purity Intrinsic Ge Detectors</li><li>• Preparation of environmental samples for analysis</li><li>• Statistical analysis of measurement data</li><li>• Participation in Laboratory Quality Assurance / Quality Control (QA/QC) Programs</li><li>• Literature search and technical translation</li></ul>

- Oct 1984 – Jan 1994      Tbilisi State University, Radiocarbon (C-14) Laboratory
- *Research Assistant*
  - Operation and calibration of Liquid Scintillation Counters
  - Preparation of fossil samples for beta spectroscopic analysis
  - Data analysis
  - Radiocarbon dating of archeological and geological samples

### **Training and Professional Development**

- June 2010                      Professional Development School in Internal Dosimetry  
US Health Physics Society, Idaho State University
- Sep – Dec 1999                IAEA 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
- Aug 1999                        IAEA Advanced Training Course, Forschungszentrum Karlsruhe, Germany
- Quality Management in Environmental Applications of Nuclear Analytical Techniques

### **Participation in International Research Projects**

- 2007 – 2009                    Idaho State University, Physics/Health Physics Department  
Tbilisi State University, C-14 and Low-Level Radioactivity Laboratory  
**Tbilisi Radon Assessment Initiative Project GEG1-3343-TB-06**  
Supported by:
- US Civilian Research and Development Foundation (CRDF)
  - Georgian Research and Development Foundation (GRDF)
- 2003 – 2006                    Idaho State University, Environmental Monitoring Laboratory (EML)  
Tbilisi State University, C-14 and Low-Level Radioactivity Laboratory  
**Independent Radiological Monitoring Program**
- 2002 – 2004                    Idaho State University, Physics/Health Physics Department  
Tbilisi State University, C-14 and Low-Level Radioactivity Laboratory  
**Advanced Accelerator Applications – Dose Conversion Coefficients Project**  
Supported by US Department of Energy
- 1999                                Research Cruise on the North and Baltic Seas  
Research Vessel “Walter Herwig III”  
BFAFi (Federal Research Office for Fishery), Germany
- 1999                                IAEA Technical Contract #10607:
- **Collection and gamma spectrometric analysis of sediment and biota samples from river Kura and the south-west Caspian sea**

- 1997 – 2003 IAEA Technical Cooperation Regional Project RER/2/003
- **Marine Environmental Assessment of the Black Sea Region**
- 1984 – 1993 Bratislava State University, Department of Physics  
Tbilisi State University, C-14 and Low-Level Radioactivity Laboratory  
Collaborative Research Project
- **Investigation of Cosmogenic and Anthropogenic Variations of C-14 Concentrations in Atmospheric CO<sub>2</sub> and Biota Samples**

### Professional Society Membership

Health Physics Society (USA)  
Georgian Health Physics Association (Georgia)

### Honors and Awards

1999 International Atomic Energy Agency Fellowship GEO/99004R  
2007 – 2008 Health Physics Society Fellowship (Burton J. Moyer Fellowship award)

### Publications

Avtandilashvili M., Brey R, James A.C. Maximum likelihood analysis of bioassay data from long-term follow-up of two refractory PuO<sub>2</sub> inhalation cases. Submitted to *Health Physics Journal* (accepted for publication).

Avtandilashvili M., Brey R, James A.C. Validation of proposed revisions to ICRP Human Respiratory Tract Model using human data associated with an acute inhalation of refractory PuO<sub>2</sub>. Poster Presentation submitted to 56<sup>th</sup> Annual Meeting of US Health Physics Society, West Palm Beach (FL), June 26-30, 2011. Supplement to *Health Physics Journal*, Vol. 101, No 1, 2011, p. S13.

James AC, Avtandilashvili M., McCord S, Tolmachev SY, Birchall A, Puncher M, Gregoratto D, Brey R. USTUR case 0202: Evaluation of proposed revisions to the ICRP HRTM for refractory PuO<sub>2</sub> (Pu fire) aerosols. 2010 USTUR Web-publication series. Report No. USTUR-282-10.

Avtandilashvili M., James A.C, Birchall A., Puncher M., Gregoratto D., Brey R. Bayesian Analysis of Bioassay and Autopsy Data from 18-y Follow-up of an Acute Accidental Inhalation of Refractory PuO<sub>2</sub>. Poster Presentation submitted to 55<sup>th</sup> Annual Meeting of US Health Physics Society, Salt Lake City (Utah), June 27- July 1, 2010. Supplement to *Health Physics Journal*, Vol. 99, No 1, 2010, p. S10.

Avtandilashvili M., Brey R., James A.C, Birchall A. Inhalation of Highly Insoluble Plutonium: Case Studies from the Rocky Flats Plutonium Fire. Abstract of the Poster Presentation submitted to 54<sup>th</sup> Annual Meeting of US Health Physics Society, Minneapolis (Minnesota), July 12-16, 2009. Supplement to *Health Physics Journal*, Vol. 97, No 1, 2009, p. S13.

Pagava S., Rusetski V., Robakidze Z., Farfan E.B., Dunker R.E., Popp J.L., Avtandilashvili M., Wells D.P., Donnelly E.H. Initial Investigation of <sup>222</sup>Rn in the Tbilisi Urban Environment. *Health Physics Journal*. Vol. 95, No 6, 2008, pp. 761-765.

Avtandilashvili M., Butikofer T., Matthews T., Cummings R. “Scan Rates” – A Form-base Excel<sup>®</sup> Spreadsheet to Model the Detectability of Surface Radioactive Contamination. Abstract of the Poster Presentation submitted to 53<sup>rd</sup> Annual Meeting of US Health Physics Society, Pittsburgh (Pennsylvania), July 13-17, 2008. Supplement to *Health Physics Journal*, Vol. 95, No 1, 2008, pp. S3-S4.

Avtandilashvili M., Dunker R., Pagava S., Rusetski V. Radiation Safety Standards in Practice: Independent Radiological Monitoring Program in Georgia. Abstract of the Poster Presentation submitted to 52<sup>nd</sup> Annual Meeting of US Health Physics Society, Portland (Oregon), July 7-12, 2007; Supplement to *Health Physics Journal*, Vol. 93, No 1, 2007, pp. S4-S5.

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. *Radiation Safety Problems in the Caspian Region. NATO Science Series. IV. Earth and Environmental Sciences – Vol. 41.* Dobrecht/Boston/London. 2004, pp. 5-12.

Avtandilashvili M., Pagava S., Robakidze Z., Rusetski V., Togonidze G. The Professional – Oriented Regional Radioecological Collaboration of Southern Caucasian States. *Radiation Safety Problems in the Caspian Region. NATO Science Series. IV. Earth and Environmental Sciences – Vol. 41.* Dobrecht/Boston/London. 2004, pp. 225-229.

Pagava S., Avtandilashvili M., Kakashvili P., Kharashvili G., Robakidze Z., Rusetski V., Togonidze G., Baratashvili D. Environmental radioactivity investigations in the Georgian subtropical region. *Study of Environmental Change Using Isotope Techniques. Proceedings of the International Conference held in Vienna, 23-27 April 2001.* IAEA, Vienna, 2002. pp. 480-481.

M.Avtandilashvili, A.Burchuladze jr., S.Pagava, Z.Robakidze, V.Rusetski, G.Togonidze. Radiological Background of the Georgian Part of the Black Sea. *Proceedings of the International Symposium on Marine Pollutions, Monaco, 5-9 October 1998*, IAEA, Vienna, 1999, pp. 338-339.

A.A.Burchuladze, S.V.Pagava, G.I.Togonidze, M.V.Avtandilashvili. Radiocarbon and 11-year variations of cosmic rays. *Radiocarbon*, USA, 1993, vol. 35, No 3, p. 347-350.

**Computer Skills:**

Internal Dosimetry Modeling: IMBA Professional Plus, IMBA Uncertainty Analyzer

Programming: Visual Basic for Applications

**Languages:**

English, Georgian, Russian, and German