ASHOK TIWARI
(Ph.D. Candidate)

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EDUCATION

2017 - University of Iowa, Department of Physics and Radiology, Iowa City, IA, USA
PhD in physics (Medical Physics)
Advisor: John Sunderland

2015 - 2017 University of South Dakota, Department of Physics, Vermillion, SD, USA
MS in Physics, *Magna Cum Laude*

2008 - 2012 Tribhuvan University, Central Department of Physics, Kathmandu, Nepal
MSc in Physics

2005 - 2008 Tribhuvan University, National Multiple College, Kathmandu, Nepal
BS in Physics

RESEARCH INTEREST

Targeted Radionuclide therapy, Internal dosimetry, Medical Physics, Nuclear Medicine, Monte Carlo simulations

EXPERTISE AND COMPUTING SKILLS

- Operation of clinical PET/CT scanners (Discovery MI, Siemens Vision and Biograph mCT)
  - Phantom scan for research
  - Phantom scan for PET/CT QA/QC
- Experience with careful handling of radioactive sources and dose calibrator
  - ^{90}Y, ^{177}Lu for absorbed dose measurements
  - ^{18}F, ^{89}Zr, ^{68}Ga for PET imaging
- High-Performance Computing (research computing, big data handling)
- Confident in the use of various operating systems: Windows, Linux, MacOS
- Software and programming skills
  - Monte Carlo Simulation: Geant4 Toolkit, GATE platform
  - ROOT data analysis framework
  - Image reconstruction software: STIR, CASToR
  - Image analysis tools: ITK-SNAP, ImageJ, Amide, DICOM
  - MATLAB
  - Python (Jupyter Notebook, Pandas, Numpy, Matplotlib, Scipy)
  - C, C++
  - JSON
  - Qt widget toolkit
  - Github
  - AutoCAD modeling
  - DOCKER

EMPLOYMENT EXPERIENCE

- Research Assistant, Department of Radiology, University of Iowa (Summer 2018 - Present)
- Teaching Assistant, Department of Physics, University of Iowa (August 2017 - August 2018)
- Teaching Assistant, University of South Dakota (August 2015 - 2017)
- Physics lecturer, SS College, Bhaktapur, Nepal (Feb 2013 - Jan 2015)
- Physics Lab In-charge, SS College, Bhaktapur, Nepal (2011- 2013)

- Part-time Physics teacher, The Celebration Co-Ed, Kathmandu, Nepal (2011 - 2013)
- Worked as a Radiographer, Sunshine Medical, Kathmandu, Nepal (Jan 2012 - June 2012)

AWARDS AND SCHOLARSHIPS

- Research Assistantship, Department of Physics and Radiology, University of Iowa.
- Teaching Assistantship, Department of Physics, University of Iowa.
- Teaching Assistantship, Department of Physics, University of South Dakota.
- Scholarship from Ministry of Environment, Science and Technology, Nepal.
- Graduate Assistantship, Central Department of Physics, Tribhuvan University, Nepal.
- Scholarship and travel support, International graduate summer school in Aeronautics and Astronautics, July 15-23 (2014), Beihang University, Beijing, China.
- Scholarship from the Seoul National University, Seoul Korea, to attend "11th Edoardo Amaldi Conference on Gravitational Waves", June 21-26, 2015, Gwangju, South Korea.

PUBLICATIONS (Most recent to earliest)

9. Graves S., Martin M., **Tiwari A**., Merrick M., and Sunderland J. SIR-Spheres® activity measurements reveal systematic miscalibration, *JNM, (Submitted), 2021.*
8. Graves S., **Tiwari A.**, Merrick M. J., Hyer D., Flynn R., Kruzer A., Nelson A., Dewaraja Y., Mirando D., and Sunderland J. Accurate resampling of radial dose point kernels to a Cartesian matrix for voxelwise dose calculation, *Med Phys, (Submitted), 2021*.
7. Merrick M. J., Rotsch D. A., **Tiwari A.**, Nolen J., Brossard T., Song J., Wadas T. J., Sunderland J.J., Graves S. A. Half-Life of ^{67}Cu, *Journal of Physics Communications (Submitted), 2021*.
6. **Tiwari, A.**, Sunderland, J., Graves, S., Strand, S., and Flynn R. Absorbed dose distributions from beta-decaying radionuclides: experimental validation of Monte Carlo tools for radiopharmaceutical dosimetry. *Med Phys*, 47(11):5779-5790, 2020.
5. Merrick M. J., Rotsch D. A., **Tiwari A.**, Nolen J., Brossard T., Song J., Wadas T. J., Sunderland J. J., Graves S A. Imaging and Dosimetric Characteristics of ^{67}Cu. *Phys Med Biol* 66, 035002, 2021.
4. **Tiwari, A.**, Graves, S., & Sunderland, J. The Impact of Tissue Type and Density on Dose Point Kernels for Patient-Specific Voxel-Wise Dosimetry: A Monte Carlo Investigation. *Radiat Res* (2020) 193 (6): 531–542.
3. Zhang C., Mei D.-M., **Tiwari A**., and Cushman P. Reply to "Comment of 'Observation of annual modulation induced by γ rays from (α, γ) reactions at the Soudan Underground Laboratory'", *Phys Rev C* 101, 049802, 2020.
2. **Tiwari, A.**, Zhang, C., Mei, D.-M., and Cushman, P., Observation of annual modulation induced by γ rays from (α, γ) reactions at the Soudan Underground Laboratory, *Phys Rev C*, Vol. 96, No. 4, October (2017).
1. **Tiwari, A.,** and Khanal, U., Gravitational radiation from a particle in bound orbit around the black hole; relativistic correction. *IOP Science Journal*, (2016).

RECENT TALKS

2. GATE simulation of Discovery MI PET scanner and its extended version, **Ashok Tiwari** and John Sunderland, GATE Scientific Meeting, Virtual Edition, May 10, (2021).
1. Dosimetry of therapeutic beta emitters using GATE Monte Carlo simulation and its experimental validation for radiopharmaceutical therapy, **Ashok Tiwari**, GATE Technical Meeting, Virtual Edition, Sep 10 (2020).

ABSTRACTS (Peer reviewed)

13. A Comprehensive PET-CT scanner characterization performance assessment paradigm and database. John Sunderland and **Ashok Tiwari**, Journal of Nuclear Medicine, May 2021, 62 (supplement 1) 1398.
12. Evaluation of a scalable qSPECT calibration method for radiopharmaceutical dosimetry. Stephen Graves, Michael Merrick, **Ashok Tiwari** and John Sunderland, Journal of Nuclear Medicine, May 2021, 62 (supplement 1) 143.
11. Monte Carlo simulation of 4-ring Discovery MI PET/CT scanner and its extended axial field-of-view to 2 m. **Ashok Tiwari**, Michael J. Merrick, Stephen A. Graves, and John Sunderland, Journal of Nuclear Medicine May 2021, 62 (supplement 1) 1150; (SNMMI Annual Virtual Meeting, 2021).
10. Experimental validation of Monte Carlo-generated beta absorbed doses for 3D voxelwise dosimetry. **Ashok Tiwari**, Stephen Graves, Sarah Strand and John Sunderland, Journal of Nuclear Medicine May 2020, 61 (supplement 1) 533, SNMMI Annual Meeting 2020.
9. Monte Carlo validation of convolution-based voxelwise dosimetry. Stephen Graves, **Ashok Tiwari**, Alexandria Kruzer, Aaron Nelson, David Mirando, Yuni Dewaraja and John Sunderland, Journal of Nuclear Medicine May 2020, 61 (supplement 1) 1019, SNMMI Annual Meeting 2020.
8. Collapsed-cone convolution superposition for improved accuracy of voxelwise dosimetry, Stephen Graves, **Ashok Tiwari** and John Sunderland, Journal of Nuclear Medicine May 2020, 61 (supplement 1) 535, SNMMI Annual Meeting 2020.
7. Production, SPECT Imaging, and Initial Evaluation of 67Cu for Theranostic Applications Authors: Michael J. Merrick, Dave A. Rotsch, **Ashok Tiwari**, Jerry Nolen, Thomas Brossard, Jeongseog Song, Thaddeus J. Wadas, John J. Sunderland, Stephen A. Graves, AAPM Annual Meeting, 2020.
6. Measurements of dose point kernels using GATE Monte Carlo toolkit for personalized convolution dosimetry, **A Tiwari**, S Graves, J Sunderland, Journal of Nuclear Medicine 60 (supplement 1), 274-274, SNMMI Annual Meeting, 2019, Anaheim, California, USA.
5. Impact of Kernel Truncation On 177Lu-DOTATATE and 131I-MIBG Voxelwise Dosimetry, S Graves, **A Tiwari**, D Hyer, R Flynn, J Buatti, J Sunderland, MEDICAL PHYSICS 46 (6), E316-E316.
4. Toward best practice voxel-wise 177Lu dosimetry: kernel generation, scanner characterization, and convolution-based dose calculation, S Graves, **A Tiwari**, Y Menda, M Madsen, J Sunderland, Journal of Nuclear Medicine 60 (supplement 1), 119-119, SNMMI Annual Meeting, 2019, Anaheim, California, USA.
3. The study of the correlation between (alpha, gamma) induced events with respect to Radon annual modulation. **A Tiwari**, C Zhang, D Mei, APS Meeting, Washington DC, 2017, USA.
2. (alpha, gamma) reaction induced background events for rare event experiments, **A Tiwari**, C Zhang, D Mei, APS Division of Nuclear Physics Meeting Abstracts, 2016, Vancouver, Canada.
1. Gravitational radiation from a particle in bound orbit around black hole; relativistic correction. **Ashok Tiwari** and Udayraj Khanal. 11th Edorado Amaldi Conference on Gravitational Waves, 2015, Gwangju, South Korea.

MEMBERSHIP

- Associate Member - Society of Nuclear Medicine and Molecular Imaging (SNMMI)
- Student Member - American Association of Physicist in Medicine (AAPM)
- Member - Golden Key International Honour Society

LEADERSHIP ROLES

- Vice President, Nepalese Student Association, University of Iowa (2017 – 2021)

REFERENCES

Provided upon request