Hunter Ratliff

Curriculum Vitae

PERSONAL DETAILS

Birth	June 23, 1993
Address (Current)	Available upon request
Address (Permanent)	Available upon request
Phone	Available upon request
Mail	`hratliff@vols.utk.edu`
Citizenship	United States

EDUCATION

Ph.D. Nuclear Engineering (In progress) **May 2015-present**
University of Tennessee, Knoxville

M.S. Nuclear Engineering **May 2015-December 2016**
University of Tennessee, Knoxville

B.S. Nuclear Engineering **August 2011-May 2015**
University of Tennessee, Knoxville

PUBLICATIONS

[1] D. Matthi, D. M. Hassler, W. de Wet, B. Ehresmann, A. Firan, J. Flores-McLaughlin, J. Guo, L. H. Heilbronn, K. Lee, H. Ratliff, R. R. Rios, T. C. Slaba, M. Smith, N. N. Stoffle, L. W. Townsend, T. Berger, G. Reitz, R. F. Wimmer-Schweingruber, and C. Zeitlin. The radiation environment on the surface of mars - summary of model calculations and comparison to rad data. *Life Sciences in Space Research*, 14(Supplement C):18 – 28, 2017. Radiation on the Martian Surface: Model Comparisons with Data from the Radiation Assessment Detector on the Mars Science Laboratory (MSL/RAD): Results from the 1st Mars Space Radiation Modeling Workshop.

[2] H. N. Ratliff, M. B. Smith, and L. Heilbronn. Simulation of the gcr spectrum in the mars curiosity rover's rad detector using mcnp6. *Life Sciences in Space Research*, 14(Supplement C):43 – 50, 2017. Radiation on the Martian Surface: Model Comparisons with Data from the Radiation Assessment Detector on the Mars Science Laboratory (MSL/RAD): Results from the 1st Mars Space Radiation Modeling Workshop.

TALKS/PRESENTATIONS GIVEN

James E. Turner Back to School Lecture Series **24 February 2018**
Roane State Community College, Oak Ridge campus Oak Ridge, TN
The radiation environment on the Martian surface: A modeling challenge and benchmarking opportunity

Mars Space Radiation Modeling Workshop 2016 **29 June 2016**
Southwest Research Institute Boulder, CO
Overview of model evaluation: "MCNP6"

WORK EXPERIENCE

Graduate Research Assistant **Summer 2015-present**
University of Tennessee, Knoxville
See the Graduate Projects section below.

Graduate Teaching Assistant **Fall 2015-Spring 2016**
University of Tennessee, Knoxville
I worked as a GTA for the undergraduate nuclear engineering lab courses which had a primary focus on radiation detection and use of NIM equipment.

Intern at ORNL **May 2014-August 2014**
Oak Ridge National Laboratory, Full-time Internship
I worked on debugging a documenting a computational fluid dynamics code written in C++ and FORTRAN. The job also involved working in a Unix environment using Open MPI to execute the code on a remote cluster.

GRADUATE PROJECTS

Neutron energy spectra deconvolution **Summer 2015-present**

Ph.D. project, In progress

I have worked on developing light response matrices for neutrons with energies up to 5 GeV incident on liquid scintillation detectors in PHITS. Additionally, I have worked on a deconvolution algorithm which seeks to convert a pulse height spectrum generated by neutrons back into the neutron energy spectrum incident on the detector using the response matrices generated with PHITS.

MCNP6 simulation of the Martian GCR flux in RAD **Summer 2016-present**

M.S. project, In progress

For a series of collaborative workshops hosted by SWRI, I worked on modeling in MCNP6 the GCR environment in the RAD detector aboard the Curiosity rover on Mars. The project required advanced usage of MCNP6 and heavy scripting for parsing output and post-processing results.

Modernization of CLSQ **Summer 2015**

Side project, Completed

I rewrote the 1962 CLSQ Brookhaven Decay Curve Analysis Program, originally in FORTRAN IV, in Python 3. In the process, the input syntax was completely redone to be far more user-friendly. Comprehensive documentation, which did not exist with the original code, was written for this effort. The updated code can be found at: `https://github.com/Lindt8/CLSQ2`

SKILLS

Programming languages	Python 3, MATLAB, FORTRAN
Transport codes	MCNP, PHITS
Software	LaTeX, Microsoft Office
Other software	Command-line interfaces for Windows and Unix
Web design (limited exp.)	HTML, CSS, and Google Sites

REFERENCES

Available upon request