

Dr. Matthew Reed

201/34 Marcus Clarke Street, Canberra , ACT 2601 , Australia ,

Contact Information

Tel: +61 402691956

e-mail: matthew.reed@anu.edu.au

Profile

Research physicist in the field of nuclear physics with more than five years of research experience. Currently work as a postdoctoral fellow in experimental nuclear physics. Educated to PhD level in experimental nuclear physics. Experienced in working with state-of-the-art radiation detection and measurement equipment and operating in radiation controlled areas. Expertise in Fortran programming and in LaTeX word processing. Have given talks at many major nuclear physics conferences, lectured to both undergraduate and postgraduate level students, convened masters courses and currently editor for HIAS 2013 conference proceedings. Looking for career progression in the field of experimental nuclear physics.

Awards + Qualifications

Awarded Institute of Physics -Early Career Nuclear Physicist award for 2011

Awarded University of Surrey - PhD student of the year in physics for 2011

Feb. 2012: Ph.D. Experimental Nuclear Physics

University of Surrey, Guildford, Surrey, UK

Thesis title: Exploring Long-lived Exotic Isomers in Deformed Atomic Nuclei with Schottky Mass Spectrometry at the GSI Storage Ring

June 2007: MPhys. (Hons) Physics with Astrophysics (Upper Second Class (2:1))

University of Leicester, University Road, Leicester, Leicestershire, UK

Dissertation: Multiple Electron Excitations from X-ray diffraction

June 2003: A Levels: Physics - C, Mathematics - B, ICT - D

June 2003: AS Level: Further Mathematics - E

Chelmer Valley High School - Sixth form , Chelmsford, Essex, UK

June 2000: GCSEs: 4 Grade A, 3 Grade B, 1 Grade C, 1 Grade D

Chelmer Valley High School, Chelmsford, Essex, UK

Professional Research Experience

Postdoctoral Researcher (February 2012 – to date)

Australian National University

- Research into neutron rich nuclei with the Gammasphere detector array.
- Discovery of isomeric states and the associated decay structure.
- Decay structure interpretation of researched nuclei.
- Have gained significant experience in working with radiation detection and measurement instrumentation, data acquisition systems and radioactive sources at several nuclear physics laboratories around the world.

Ph.D. Research Student (October 2008 – Dec 2011) + Postdoctoral Researcher (December 2012 – February 2012)

University of Surrey, Guildford, Surrey, UK

- Research focused on the analysis of nuclear reaction data to gain insight into the changing structure of neutron-rich nuclei.
- Discovery of new isomeric states in poorly studied neutron-rich nuclei.
- Writing codes in Fortran for several purposes including multi-parameter fitting of data sets.
- Organise and chair Nuclear Physics group meetings.
- Have been heavily involved in the planning and running of experiments.

Other Relevant Professional Experience

Postdoctoral Researcher (February 2012 – to date)

Australian National University

- Course convener and lecturer of the masters course on Accelerators and their applications
- Set up and taught undergraduate laboratories for nuclear physics experiments
- Appointed to the editorial board for Heavy Ion Accelerator Symposium 2013 (HIAS2013) conference proceedings
- Taught and Demonstrated laboratory experiments to high school students
- Given tours of the accelerator facility to collaborators and guest of the department
- Have provided assistance and guidance to Ph.D. students in the department.

Ph.D. Research Student (October 2008 – Dec 2011) + Postdoctoral Researcher (December 2012 – February 2012)

University of Surrey, Guildford, Surrey, UK

- Demonstrated for undergraduate physics in computing laboratories and to prospective students in teaching laboratories.
- Have provided assistance and guidance to Ph.D. students in the department.
- Lectured and given tutorials to 1st and 3rd year undergraduate students.

Talks (in the last 3 Years)

- March 2010 and March 2011: ILIMA Collaboration meetings, GSI Germany
- April 2010: Institute of Physics; Nuclear Physics Group Conference, Edinburgh, UK
- June 2010: Isomeric physics workshop, University of Surrey
- August 2010: Nuclear Structure Conference 2010, Berkeley, California, USA
- January 2011: Pre-Spec meeting, University of Brighton, UK
- March 2011: ILIMA Collaboration meeting, GSI Germany
- April 2011: Institute of Physics; Nuclear and Particle Physics Divisional, Glasgow, UK
- July 2011: INIR (Invited speaker), St Petersburg, Russia
- August 2011 : Rutherford Centenary Conference, Manchester, UK
- October 2011 : STORi'11 (Plenary Talk), Rome, Italy
- February 2012 : University of Surrey; Seminar Talk, Guildford, UK
- April 2012 : Institute of Physics (Invited speaker); Nuclear Physics Group Conference, Brighton, UK
- May 2012 : Australian National University; Seminar Talk, Canberra, Australia
- December 2012 : Australia Institute of Physics Conference, Sydney, Australia
- January 2013 : University of Edinburgh; Seminar Talk, Edinburgh, UK
- April 2013 : Heavy Ion Accelerator Symposium (Plenary Talk), Canberra, Australia
- June 2013: International Nuclear Physics Conference, Florence, Italy

Selected Publications

M. W. Reed *et al.*

Discovery of Highly Excited Long-Lived Isomers in Neutron-Rich Hafnium and Tantalum Isotopes through Direct Mass Measurements

Physical Review Letters: Editors Selection 105, 172501 (2010)

M. W. Reed *et al.*

Technique for Resolving Low-lying Isomers in the Experimental Storage Ring (ESR) and the Occurrence of an Isomeric State in ^{192}Re

Rutherford Centenary Conference proceedings - J. Phys. Conf. Ser. 381 012058 (2012)

M. W. Reed *et al.*

Long-lived isomers in neutron-rich $Z = 72$ -76 nuclides

Physical Review C 86, 054321 (2012)

Non-academic Experience

- Vice president of University society
- Presenter on University radio (LUSH FM)

Relevant Skills and Experience

- Strong analytical and problem solving skills developed during research in nuclear physics.
- Demonstrated innovation and creativity by developing a novel analytical technique to discover low-lying isomeric states in the ESR.
- Knowledge of radiation detection and measurement techniques. Experience with operating and setting up a variety of detectors, electronics and data acquisition system.
- Experience in handling radioactive materials and working in radiation controlled areas and good knowledge of safety procedures.
- Extensive programming experience using Fortran 95 in conjunction with analysis program Gnuplot, Radware, LaTeX, Microsoft Office, UNIX, LINUX and Windows operating systems.
- Working knowledge of Maple, C, C++ and postscript.
- Strong oral presentation skills.
- Experience in lecturing at undergraduate and postgraduate levels
- Editorial experience of conference proceedings for HIAS:2013
- Enhanced leadership and planning skills through organising and chairing group meetings.
- Experience in team working both in a small group environment and large groups.

Other

- Full clean UK driving licence

Personal Interests

I am very interested in sport and have played many sports at a local level, including Cricket, Badminton and Rugby. I also enjoy hiking and to this end have been on many hiking trips at home and abroad. I enjoy history and a love of mine is visiting historic sites. I have a keen interest in music and attend many concerts through out the year.

Referees

Prof. George Dracoulis
Emeritus Professor of Physics,
Department of Nuclear Physics,
Australian National University,
Canberra,
ACT 0200, Australia
e-mail:
george.dracoulis@anu.edu.au

Dr. Yuri Litvinov
Research Associate,
GSI,
Planckstraße 1,
64291 Darmstadt,
Germany
e-mail: y.litvinov@gsi.de

Dr. Gregory Lane
Reader,
Department of Nuclear Physics,
Australian National University
Canberra,
ACT 0200, Australia
email: Gregory.lane@anu.edu.au