

ASHKBIZ DANEHKAR

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QUALIFICATIONS

Doctor of Philosophy, Physics (expected)
Macquarie University, Sydney, Australia September 2013
Research Topic: “Stellar evolution of double-degenerate central stars of planetary nebulae and type Ia supernova progenitors.”

Master of Science (Distinction), Plasma Physics
Queen’s University Belfast, Belfast, UK December 2009
Research Project: “Propagation of electron-acoustic excitations in the presence of suprathermal background electrons - linear and nonlinear effects.”

Master of Science (Merit), Computational Engineering
University of Rostock, Rostock, Germany September 2007

WORK EXPERIENCE

PhD Research April 2010 - Present
Department of Physics, Macquarie University, Sydney, Australia

- Conduct research to model the photoionization of double-degenerate central stars of planetary nebulae.
- Support from the Macquarie University Research Excellence Scholarship (MQRES) Scheme.

Master’s Research October 2008 - December 2009
Centre for Plasma Physics, Queen’s University Belfast, Belfast, UK

- Conducted research to model electron-acoustic excitations in the presence of suprathermal background electrons.
- Simulated nonlinear dispersion of laser pulses propagating through Kerr media.
- Perform optical emission spectroscopy of non-thermal atmospheric pressure plasmas.
- Courses: Introductory, Experimental, and Theoretical Plasma Physics, Laser Produced Plasmas, and Low Temperature Plasmas.
- Support from the Department for Employment and Learning (DEL) Northern Ireland.

Early-Stage Research February - October 2008
Faculty of Physics, University of Craiova, Craiova, Romania

- Conducted research to investigate BRST couplings between a background field (BF) model and dual formulation of linearized gravity in five dimensions.
- Courses: General Relativity, Constrained Dynamics, Quantized Gauge Field, BRST Symmetry and its Applications.
- Support from the European Union Contract MRTN-CT-2004-005104.

Master's Work

September 2007

Faculty of Computer Science and Electrical Engineering, University of Rostock, Rostock, Germany

- Developed microcontroller based measurement system to record neuromuscular signals in clinical and anaesthesia practice.
- Developed numerical simulation and computational modeling analysis of physical phenomena, e.g. magnetic coil, rotating electric machine, and microwave antenna.
- Courses: Applied Mathematics, Computational Method, Software Concepts, Visualization, Control Technology, and Integrated Circuit Design.

FELLOWSHIPS, AWARDS, & GRANTS

International Astronomical Union (IAU) Travel Grant for IAUS 281 (€1,400)	2011
IAU Travel Grant for IAUS 282 (€600)	2011
IAU Travel Grant for IAUS 283 (€530)	2011
Max-Planck Institute for Extraterrestrial Physics Scholarship for ICPDP6 (€1,460)	2011
Macquarie University Safety Net Grant (PI: O. De Marco) (\$8,000)	2011
International Macquarie University Research Excellence Scholarship (iMQRES) (\$180,000)	2010-2013
Department for Employment and Learning (DEL) Northern Ireland Studentship (£23,930)	2008-2009
Marie Curie Travel Grants (€2,150)	2008
Marie Curie Training Grants (Conference & Workshop) (€1,400)	2008
Marie Curie Fellowship for Early Stage Training (€12,600)	2008

PROFESSIONAL MEMBERSHIP

Member of the Australian Institute of Physics (AIP)	2011-present
Student Member of the Astronomical Society of Australia (ASA)	2011-present
Full Member of the Sigma Xi Scientific Research Society (ΣX)	2011-present
Associate Member of the Institute of Physics (IOP-UK)	2010-2012
Member of the Society of Physics Students - Sigma Pi Sigma (SPS)	2010-2012

CONFERENCES AND SCHOOLS

- Large Surveys in the Multi-IFS era: Sydney-AAO Multi-object IFS (SAMI) Workshop, Sydney, Australia, 9-10 Feb 2012.
- Macquarie University Centre for Astronomy, Astrophysics and Astrophotonics - 1st Annual Workshop: Phases of Late Stage Stellar Evolution, Sydney, Australia, 5-7 Dec 2011.
- International Astronomical Union Symposium 283, Planetary Nebulae: an Eye to the Future. Puerto de la Cruz, Tenerife, Spain, 25-29 July 2011.
- International Astronomical Union Symposium 282, From Interacting Binaries to Exoplanets: Essential Modeling Tools, Tatranska Lomnica, Slovakia, 18-22 July 2011.
- International Astronomical Union Symposium 281, Binary Paths to the Explosions of type Ia Supernovae, Padova, Italy, 4-8 July 2011.
- 6th International Conference on the Physics of Dusty Plasmas, Garmisch-Partenkirchen, Germany, 16-20 May 2011.
- The 3rd National Conference on Theoretical Physics, Buşteni, Romania, 10-13 June 2008.
- The 6th International School and Workshop on Quantum Field Theory and Hamiltonian Systems, Călimăneşti, Romania, 6-11 May 2008.

OBSERVING TIME

- **MSSSO ANU-2.3m Telescope**, WiFeS Spectrograph, “Kinematic study of planetary nebulae with potential double-degenerate nuclei” (2012A)

PUBLICATIONS

a. Refereed Journals

1. “Electron-acoustic solitary waves in the presence of a superthermal electron component”
A. Danehkar, N. S. Saini, M. A. Hellberg, and I. Kourakis
Physics of Plasmas, Volume: **18**, Issue: 7(2011) pp. 072902/1-10.
2. “On the significance of the Weyl curvature in a relativistic cosmological model”
A. Danehkar
Modern Physics Letters A, Volume: **24**, Issue: 38(2009) pp. 3113-3127.
3. “Consistent interactions of dual linearized gravity in $D = 5$: couplings with a topological BF model”
C. Bizdadea, E. M. Cioroianu, A. Danehkar, M. Iordache, S. O. Saliu, and S. C. Sararu
European Physical Journal C, Volume: **63**, Issue: 3(2009) pp. 491-519.

b. Conference Proceedings (refereed)

1. “Photoionization modeling of the Galactic planetary nebulae Abell 39 and NGC 7027”
A. Danehkar, D. J. Frew, Q. A. Parker, and O. De Marco
Proceedings of the International Astronomical Union Symposium 283 (2011), *submitted*.
2. “Photoionization models of the Eskimo nebula: evidence for a binary central star?”
A. Danehkar, D. J. Frew, Q. A. Parker, and O. De Marco
Proceedings of the International Astronomical Union Symposium 282 (2011), *submitted*.
3. “A search for Type Ia supernova progenitors: the central stars of the planetary nebulae NGC 2392 and NGC 6026”
A. Danehkar, D. J. Frew, and O. De Marco, and Q. A. Parker
Proceedings of the International Astronomical Union Symposium 281 (2011), *submitted*.
4. “Large-amplitude electron-acoustic solitary waves in a dusty plasma with superthermal electrons”
N. S. Saini, A. Danehkar, M. A. Hellberg, and I. Kourakis
AIP Conference Proceedings, Volume: **1397**, Issue: 1(2011) pp. 357-358.
5. “Electron beam–plasma interaction in a dusty plasma with excess suprathermal electrons”
A. Danehkar, N. S. Saini, M. A. Hellberg, and I. Kourakis
AIP Conference Proceedings, Volume: **1397**, Issue: 1(2011) pp. 305-306.
6. “Effect of superthermality on nonlinear electrostatic modes in plasmas”
S. Sultana, A. Danehkar, N. S. Saini, M. A. Hellberg, and I. Kourakis
Europhysics Conference Abstracts, Volume: **34A** (2010) P2.410.
7. “BF Models in Dual Formulations of Linearized Gravity”
C. Bizdadea, E. M. Cioroianu, A. Danehkar, M. Iordache, S. O. Saliu, and S. C. Sararu
AIP Conference Proceedings, Volume: **1131**, Issue: 1(2009) pp. 29-35.