Dr. Dan Taranu

dan.taranu@icrar.org

Dan S. Taranu
International Centre for Radio Astronomy Research
`http://www.icrar.org/people/dtaranu/`
`https://github.com/taranu/`

7 Fairway
The University of Western Australia
Crawley, WA 6009
Tel.: 04 6488 5098

Research Interests

Galaxy dynamics, galaxy formation and evolution, galaxy groups and clusters, N-body simulations, astrostatistics.

References

Prof. Danail Obreschkow, ICRAR/U. Western Australia. `danail.obreschkow@icrar.org`
Prof. Simon Driver, ICRAR/U. Western Australia. `simon.driver@icrar.org`
Prof. Scott Croom, Sydney Institute for Astronomy/U. Sydney. `scott.croom@sydney.edu.au`

Academic Employment

2015 Jan. – **CAASTRO Research Associate**
Postdoctoral fellow, ARC Centre of Excellence for All-sky Astrophysics (CAASTRO), at the University of Western Australia (UWA) node of the International Centre for Radio Astronomy Research (ICRAR). Advisors: Profs. Danail Obreschkow and Chris Power.

2014 Oct. – 2014 Dec. **Research Associate - University of Toronto**
Postdoctoral research associate at the University of Toronto Department of Astronomy & Astrophysics. Advisor: Prof. John Dubinski.

Education

2008 – 2014 PhD, Astronomy and Astrophysics, University of Toronto, Canada
Advisors: Profs. John Dubinski and Howard K.C. Yee
Thesis Title: On the Formation of Elliptical Galaxies via Mergers in Galaxy Groups

2003 – 2008 BSc, Honours Co-op Computational Science - Physics Specialization, University of Waterloo, Canada

Skills and Proficiencies

Languages C++, R, Python, MATLAB, Perl, Bash, Java, PHP (in rough order of proficiency)
Software Fedora/CentOS, Eclipse, RStudio, PyCharm, MATLAB, DS9, N-body codes (Gasoline/ChaNGa, Partree), GalactICS, Uniview

Honours and Awards

2016 Chief Investigator of University of Western Australia Research Collaboration Award: "How Do Spiral Galaxies Form Through Cosmic Time", $20,000 travel grant (Australia)

2015 – 2018 CAASTRO/National Computational Infrastructure Grant: 3,410,000 CPU-hours; in-kind value $170,500 (Australia)

2014 University of Toronto Department of Astronomy & Astrophysics Jui Lin (Allen) Yen Award. Competitive department award for graduate research, $1,000 value (Canada)

2013 University of Toronto, Mary and Ron Martin Graduate Fellowship in Astrophysics (Canada)

2008 – 2013 University of Toronto Fellowships (Canada)

2011 – 2012 Ontario Graduate Scholarship, $15,000 value (Canada)

2009 – 2010 Walter John Helm Ontario Graduate Scholarship in Science and Technology, $15,000 value (Canada)

2008 National Sciences and Engineering Research Council Undergraduate Student Research Award, $4,500 value (Canada)

Publications Under Review

2017 Robotham, A.S.G., Davies, L.J.M., Driver, S.P.D., Koushan, S., **Taranu**, D.S., Casura, S., Liske, J., "ProFound Source Extraction and Application to Data". 2017. MNRAS, submitted (MN-17-3548-MJ).

2017 Green, A.W., Croom, S.M., Scott, N., and 48 colleagues. "The SAMI Galaxy Survey: Data Release One With Emission-Line Physics Value-Added Products". 2017. MNRAS, submitted (MN-17-1659-MJ); arXiv: 1707.08402.

2017 Medling, S., Cortese, L., Croom, S.M., and 41 colleagues. "The SAMI Galaxy Survey: Spatially Resolving the Main Sequence of Star Formation". 2017. MNRAS, submitted (MN-17-1708-MJ).

Accepted Publications

2017 **Taranu**, D. S., Obreschkow, D., Dubinski, J. J., and 26 colleagues. "Self-Consistent Bulge/Disk/Halo Galaxy Modeling Using Integral Field Kinematics". 2017. ApJ, accepted (AAS04815R2).

2017 Foster, C., van de Sande, J., D'Eugenio, F., and 17 colleagues. "The SAMI Galaxy Survey: the intrinsic shape of kinematically selected galaxies". 2017. MNRAS, 472, 966. 1 citation.

2017 Brough, S., van de Sande, J., Owers, M. S., and 23 colleagues. "The SAMI Galaxy Survey: Mass as the Driver of the Kinematic Morphology-Density Relation in Clusters". 2017. ApJ, 844, 59. 7 citations.

2017 Robotham, A. S. G., **Taranu**, D. S., Tobar, R., Moffett, A., and Driver, S. P.. "PROFIT: Bayesian profile fitting of galaxy images". 2017. MNRAS, 466, 1513. 5 citations.

2017 van de Sande, J., Bland-Hawthorn, J., Fogarty, L. M. R., and 36 colleagues. "The SAMI Galaxy Survey: Revisiting Galaxy Classification through High-order Stellar Kinematics". 2017. ApJ, 835, 104. 13 citations.

2016 Cortese, L., Fogarty, L. M. R., Bekki, K., and 34 colleagues. "The SAMI Galaxy Survey: the link between angular momentum and optical morphology". 2016. MNRAS, 463, 170. 16 citations.

2015 **Taranu**, D., Dubinski, J., and Yee, H. K. C.. "Mergers in Galaxy Groups. II. The Fundamental Plane of Elliptical Galaxies". 2015. ApJ, 803, 78. 9 citations.

2014 Muzzin, A., van der Burg, R. F. J., McGee, S. L., and 9 colleagues. "The Phase Space and Stellar Populations of Cluster Galaxies at z 1: Simultaneous Constraints on the Location and Timescale of Satellite Quenching". 2014. ApJ, 796, 65. 42 citations.

2014 **Taranu**, D. S., Hudson, M. J., Balogh, M. L., Smith, R. J., Power, C., Oman, K. A., and Krane, B.. "Quenching star formation in cluster galaxies". 2014. MNRAS, 440, 1934. 32 citations.

2013 **Taranu**, D. S., Dubinski, J., and Yee, H. K. C.. "Mergers in Galaxy Groups. I. Structure and Properties of Elliptical Remnants". 2013. ApJ, 778, 61. 28 citations.

Non-Refereed Publications

Conference Proceedings

2013 **Taranu, D.S.**, Dubinski, J.J., Yee, H.K.C., "The Fundamental Plane of Galaxy Group Mergers", Astronomical Society of the Pacific Conference Series, vol. 477, 105. Pre-print arXiv:1209.1671. 0 citations.

Astronomy Source Code Library Entries

2016 Robotham, A. S. G., Taranu, D., and Tobar, R.. "PyProfit: Wrapper for libprofit". 2016. ascl.soft, ascl:1612.005. 0 citations.

2016 Robotham, A. S. G., Taranu, D., and Tobar, R.. "ProFit: Bayesian galaxy fitting tool". 2016. ascl.soft, ascl:1612.004. 0 citations.

Non-Refereed Publications (continued)

2016 Robotham, A. S. G., Taranu, D., and Tobar, R.. "libprofit: Image creation from luminosity profiles". 2016. ascl.soft, ascl:1612.003. 0 citations.

International Conference Presentations

2017 Aug. "Feedback and the Structure of Local Galaxies", From Black Hole to Environment: Galaxy Evolution over Multiple Wavelengths, Australian National University, Canberra, Australia

2017 Jun. "Dissecting galaxies with 6D physical models using SAMI/GAMA data", Southern Cross 2017: Surveying the Cosmos, Luna Park, Sydney, Australia

2016 Sep. "Dissecting Disk Galaxies with SAMI", Galaxy Morphometrics, Lorentz Center, Leiden, Netherlands (Invited)

2016 Jul. "Dissecting discs and bulges with SAMI and Romulus", Discs in Galaxies, European Southern Observatory, Garching, Germany

2016 Jun. "Modelling and simulating galaxies with SAMI", Great Lakes Cosmology and Galaxies 2016, McMaster University, Hamilton, Canada

2015 Aug. "On the Formation of Elliptical Galaxies via Mergers in Galaxy Groups", International Astronomical Union XXIX General Assembly, Honolulu, USA

2015 Jan. "On the Formation of Elliptical Galaxies via Mergers in Galaxy Groups", 225th American Astronomical Society Meeting, Seattle, USA

Selected Invited Seminars

2017 Mar. "Dissecting Spiral Galaxies With Integral Field Kinematics", Department of Physics & Astronomy, McMaster University, Hamilton, Canada

2017 Mar. "Dissecting Discs and Bulges with SAMI and Romulus", Department of Astronomy, University of Washington, Seattle, USA

2016 Sep. "Dissecting Discs and Bulges with SAMI and Romulus", Centre for Astrophysical Surveys, University of Oxford, Oxford, UK

2016 Jul. "Dissecting Discs and Bulges with SAMI and Romulus", Canadian Institute for Theoretical Astrophysics, Toronto, ON, Canada

2013 Oct. "Forming Elliptical Galaxies via Mergers in Groups", Astronomy Seminar, Columbia University, New York City, NY, USA

2013 Oct. "Forming Early-Type Galaxies in Groups and Clusters", Yale Cosmology Seminar, Yale University, New Haven, CT, USA

2013 Oct. "Mergers in Galaxy Groups and the Fundamental Plane of Elliptical Galaxies", ITC Seminar, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA

Students Supervised

2016 Lesley Maddox (MSc, UWA); co-supervised with Prof. Danail Obreschkow

2017 Xuecong Liu (Undergraduate internship, Nankai University)

Professional Service

2015 Apr. – CAASTRO "Evolving" Theme Scientist. Coordinate progress reports on 6–7 major CAASTRO projects; assisted Theme Leaders Prof. Wyithe/Staveley-Smith; organized national/regional meetings.

2016 Mar. Organizer for the SAMI Kinematic Scaling Relations Workshop at ICRAR/UWA

2015 – Referee for ApJ, MNRAS and RMxAA

2014 – Full member of the SAMI Galaxy Survey team

2014 – International affiliate of the American Astronomical Society

Public Outreach

2016 Oct. CAASTRO Astronomer in Residence at Uluru. Gave public talks, engaged visitors at the Ayers Rock Resort Town Square and at nighttime observing sessions while tweeting @CAASTROatUluru.

2015 – 2016 Volunteer for Astrofest Perth (ICRAR/Curtin) and UWA Open Day.

2008 – 2014 Volunteer for the University of Toronto Department of Astronomy & Astrophysics' free monthly public tours. Gave free public talks, free public and paid private group tours (including school groups) with 25–60 minute planetarium shows and observing sessions from the 8" and 16" telescopes.

Teaching Experience

2008 – 2013 Two to three terms of teaching assistant positions per year, several of which are highlighted below.

2012 Sep. – 2013 Apr. AST101 ("Sun and its Neighbours", 1200 non-science students), "contact" TA
Responsible for online contact including e-mail, discussion board and online office hours prior to tests.

2012 Jan. – 2012 Apr. AST121 ("The Origin and Evolution of the Universe", 120 science students), General TA
Assignment and test grading and regular tutorials for assignment and test preparation and handback.

2011 Sep. – 2011 Dec. AST101, Tutorial TA
Responsible for three weekly, hour-long tutorials of 20-40 students each, including planetarium shows.

2010 Jan. – 2010 Apr. AST251 ("Life on Other Worlds", 200 science students), general
Assisting students with writing term essays on various topics related to life on Earth and beyond, as well as grading.

Professional Experience

2007 May – 2007 Aug. **Imaging Research Centre for Cardiac Intervention, Sunnybrook Hospital, Toronto**
Development and implementation of algorithms in MATLAB for segmentation of cardiac MRI images to detect boundaries of the heart volume.

2006 Sep. – 2006 Dec. **Toronto Centre for Phenogenomics, Toronto**
Testing and development of automated testing system for Java/web application using Groovy.

2006 Jan. – 2006 Apr. **Grand River Regional Hospital, Waterloo**
Regular testing of medical accelerators for cancer treatment and research into appropriate CT scan voltage for young patients.

2005 Sep. – 2005 Dec. **Arius Software, Waterloo**
Development and testing of Java and web application for investment accounts using Java-based framework.