

Sandor Jozsef Kruk

PERSONAL DATA

DPhil Astrophysics

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EDUCATION

PRESENT	DPhil in Astrophysics
SEP 2014	University of Oxford , Oxford, United Kingdom. Thesis: Secular evolution of galaxies in the Modern Era with the Galaxy Zoo project . Advisor: Prof. Chris Lintott.
JUN 2014	MSci degree in Astrophysics.
SEP 2010	University College London (UCL) , London, United Kingdom. Grade: First Class Honours (Average Mark 92/100). Commended on the Dean's list of the UCL Mathematical & Physical Sciences Faculty. Thesis: High-energy radiation and cosmic rays from bubbles in galaxies . (Mark 85/100). Advisor: Prof. Kinwah Wu (MSSL, UCL).
JUN 2010	High School
SEP 2006	Vasile Lucaciu National College , Baia Mare, Romania. Graduated in top 1% of the class (secondary school GPA: 9.93/10). Romanian Baccalaureate Diploma (graduation exam: 9.70/10).

RESEARCH INTERESTS

Galaxies: evolution, morphology, classification, structure (discs, bars, bulges, rings, spiral arms etc.), star formation, parametric fitting. Peculiar objects (galaxies with off-centre bars/nuclei, blue ellipticals, red spirals etc.). Integral field spectroscopy. Survey and multiwavelength astronomy. Big Data: data mining, citizen science, crowdsourcing, machine learning.

OTHER RESEARCH EXPERIENCE

SUMMER 2013	University of London Observatory , UCL, UK Developed tools to characterize exoplanet transits using small telescopes. Developed tutorials and lecture materials for the Practical Astronomy labs.
SUMMER 2012	Mullard Space Science Laboratory , UCL, UK Modeled the dynamics of void galaxies to study the distribution of dark matter in clusters for future missions such as EUCLID.
SUMMER 2011	University of Heraklion , Crete, Greece Observed and studied the optical counterparts of X-ray binaries.

TEACHING, SUPERVISION & MENTORING

PRESENT 2015	Tutor of 4 th Year MPhys Astrophysics Major, University of Oxford ◦ Tutor of the year-long astrophysics course at the University of Oxford Department of Physics, accounting for 1/3 of the 4 th year's overall mark. ◦ Taught final year students a range of topics in modern astrophysics (cosmology, galaxies, high energy astrophysics, stellar evolution, radiative processes).
PRESENT 2015	Demonstrator of 1 st Year Data Analysis Course ◦ Assisted students in first term <i>R</i> data analysis labs.
AUG 2017 JUN 2017	Summer student supervision , Jesse Murray-Dean, University of Kent ◦ Co-supervised summer student's project on classifying bars in Galaxy Zoo.

HONOURS, AWARDS, GRANTS

- NOV 2017 **Ambassador's Diploma** for Research awarded by the Romanian Ambassador in the UK.
- JAN 2017 **Special award** for excellency during doctoral studies awarded by the League of Romanian Students Abroad, supported by the Romanian Presidential Cabinet and Romanian Academy.
- APR 2015 **Clockmakers' Prize** from the Clockmakers Livery Company, City of London, for the contribution made to the UCL Astronomy Department and to the University of London Observatory.
- OCT 2014 **Studentship** for doctoral studies from the UK Science & Technology Facilities Council.
- JUN 2014 **Dean's List** award for being in top 2% undergraduates of the Mathematical & Physical Sciences Faculty at UCL.
- JUN 2014 **Herschel prize** for the best performance in 4th year Astronomy at UCL.
- OCT 2013 **Best performance in 3rd year Astronomy** at UCL.
- OCT 2012 **Huggins prize** for the best performance in 2nd year Astronomy at UCL.
- JUN 2012 **Summer research studentship** from the Royal Astronomical Society.
- OCT 2011 **Halley prize** for the best performance in 1st year Astronomy at UCL.
- AUG 2010 **Gold Medal** in the 4th IOAA, Beijing, China.
- NOV 2009 **Silver Medal** and Special Prize for the best result in the Observational Round in the XIVth International Astronomy Olympiad, Hangzhou, China.
- OCT 2009 **Honourable Mention** in the 3rd IOAA, Teheran, Iran.
- AUG 2008 **Bronze Medal** in the 2nd IOAA, Bandung, Indonesia.

OUTREACH

- PRESENT 2015 | **Founder and Coordinator**, British Astronomy and Astrophysics Olympiad
- Founder of the first [Astronomy Olympiad](#) in the United Kingdom and coordinator of the national Olympiad. Raised funds to run the competition.
 - Achieved wide national participation in the first two years of the competition, the papers being taken by >1000 students across the UK.
 - Organised training camps and trained the team to participate in the International Olympiad on Astronomy and Astrophysics (IOAA). Lead the UK team in the international competitions achieving excellent results: 1 Silver, 3 Bronze Medals in the IOAA 2017 in Phuket, Thailand; 1 Gold, 1 Silver, 1 Bronze Medal and 2 Honourable Mentions in the IOAA 2016 in Bhubaneswar, India and 2 Silver Medals in the IOAA 2015 in Bandung, Indonesia.
- PRESENT 2016 | **Co-founder**, Oxford For Romania Summer School
- Co-founded and raised funds to bring >20 bright Romanian students from disadvantaged backgrounds to a [multidisciplinary summer school](#) at one of the world leading universities, for two consecutive years.
 - Planned the timetable, coordinated the logistics and organised workshops on novel discoveries in astronomy.
 - The project received two prizes: the UK Romanian Ambassador's Diploma for Romanian Community and the Generosity Trophy given by the Hategan Foundation.

SEMINARS, TALKS AND POSTERS

Conference contributions: **7** talks and **5** poster presentations.

Seminars and colloquia: **7** seminars.

Regularly gave outreach talks at public events in Oxford and in Romania.

Graduate outreach rep of the University of Oxford Astrophysics Department during 2015-2016.

LIST OF MOST RECENT CONFERENCES, TALKS AND SEMINARS

- DEC 2017 SDSS-IV MaNGA Team Meeting, Campeche, Mexico (talk).
OCT 2017 Gas in Galaxies Conference, Malta (talk).
SEP 2017 ESO, Garching, Germany (lunch talk).
SEP 2017 MPE, Garching, Germany (seminar).
AUG 2017 Universitäts Sternwarte Munich, Germany (talk).
IUL 2017 Galaxy Zoo 10 Meeting, Oxford, UK (talk).
IUL 2017 National Astronomy Meeting (NAM), Hull, UK (talk & poster).
IUN 2017 European Weak of Astronomy and Space Science (EWASS), Prague, Czech Republic (poster).
MAY 2017 University of Oxford, UK (seminar).
DEC 2016 10th International Olympiad on Astronomy and Astrophysics, Bhubaneswar, India (outreach talk).
IUL 2016 Discs in Galaxies Conference, ESO, Garching, Germany (poster).
IUN 2016 National Astronomy Meeting (NAM), Nottingham, UK (two talks).
APR 2016 What Shapes Galaxies Symposium, STScI, Baltimore, USA (poster).

SKILLS

Languages

- *Romanian*: mother tongue • *Hungarian*: mother tongue • *English*: fluent
- *French*: intermediate knowledge • *Spanish*: basic knowledge

Observing

- *Radio*: observed with the Caltech Submillimetre Observatory for 10 nights.
- *Optical*: observed with 2-m telescopes, with both imaging and spectroscopy - the Nordic Optical Telescope, and using the telescopes in Skinakas, Moletai and Observatoire de Haute Provence. Experienced in using and maintaining smaller telescopes.

Data analysis and techniques

- Experienced in planning, reducing and analysing optical, radio and spectroscopic data from various telescopes.
- Expert in galaxy fitting and decompositions of large samples using softwares such as GALFIT, GALFITM and GALAPAGOS.

Computer knowledge and programming

- Linux, Windows, MacOS, L^AT_EX, Topcat, IRAF, pyRAF, SExtractor, EAZY, CLASS, MONTAGE, DS9, CSS, MS Office.
- Python, R, IDL, SQL, HTML, Matlab, Bash, Tcsh.

REFEREES

Name:	PROF CHRIS LINTOTT	DR KAREN MASTERS
Relation:	PhD supervisor	Collaborator
Position:	Professor in Astrophysics & Citizen Science Lead	Reader in Astrophysics
Address:	Physics Department, University of Oxford Keble Road, Oxford, OX1 3RH United Kingdom	ICG, University of Portsmouth Burnaby Road, Portsmouth, P01 3FX United Kingdom
Email:	chris.lintott@physics.ox.ac.uk	karen.masters@port.ac.uk
Phone:	+44 (0)1865 (2)73638	+44 (0)2392 843137
Name:	DR STEVEN BAMFORD	DR VICTOR DEBATTISTA
Relation:	Collaborator	Collaborator
Position:	Lecturer in Astrophysics	Reader in Astrophysics
Address:	Centre for Astronomy and Particle Theory University of Nottingham, Nottingham, NG72RD United Kingdom	Jeremiah Horrocks Institute University of Central Lancashire Preston, PR1 2HE, United Kingdom
Email:	steven.bamford@nottingham.ac.uk	vpdebattista@gmail.com
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PUBLICATIONS

Refereed publications: **9**, of which **2** as first author. A full up-to-date list of publications can be found online at: [ADS Sandor J. Kruk search](#).

First author

1. **Kruk, Sandor J.**, Lintott, Chris J., Bamford, Steven P., Masters, Karen L., Simmons, Brooke D., Håußler, Boris, Cardamone, Carolin N., Hart, Ross E., Kelvin, Lee, Schawinski, Kevin, Smethurst, Rebecca J., Vika, Marina: *Galaxy Zoo: Secular evolution of barred galaxies using structural decomposition of multiband galaxy images*, Monthly Notices of the Royal Astronomical Society, 473, 4731-4753 (Feb 2018).
2. **Kruk, Sandor J.**, Lintott, Chris J., Simmons, Brooke D., Bamford, Steven P., Cardamone, Carolin N., Fortson, Lucy, Hart, Ross E., Håußler, Boris, Masters, Karen L., Nichol, Robert C., Schawinski, Kevin, Smethurst, Rebecca J.: *Galaxy Zoo: Finding offset discs and bars in SDSS*, Monthly Notices of the Royal Astronomical Society, 469, 3363-3373 (Aug 2017).

Contributing author

1. Hart, Ross E., Bamford, Steven P., Hayes, Wayne B., Cardamone, Carolin N., Keel, William C., **Kruk, Sandor J.**, Lintott, Chris J., Masters, Karen L., Simmons, Brooke D., Smethurst, Rebecca J.: *Galaxy Zoo and sparcfire: constraints on spiral arm formation mechanisms from spiral arm number and pitch angles*, Monthly Notices of the Royal Astronomical Society, 472, 2263-2279 (Dec 2017).
2. Hugh Dickinson, Lucy Fortson, Chris Lintott, Claudia Scarlata, Kyle Willett, Steven Bamford, Melanie Beck, Carolin Cardamone, Melanie Galloway, Brooke Simmons, William Keel, **Sandor Kruk**, Karen Masters, Mark Vogelsberger, Paul Torrey, and Gregory F. Snyder: *Galaxy Zoo: Morphological classification of galaxy images from the ILLUSTRIS simulation*, submitted to the Astrophysical Journal (Oct 2017).
3. Smethurst, R. J., Lintott, C. J., Bamford, S. P., Hart, R. E., **Kruk, S. J.**, Masters, K. L., Nichol, R. C., Simmons, B. D.: *Galaxy Zoo: The interplay of quenching mechanisms in group environment*, Monthly Notices of the Royal Astronomical Society, 469, 3670-3687 (Aug 2017).
4. Weigel, Anna K., Schawinski, Kevin, Caplar, Neven, Carpineti, Alfredo, Hart, Ross E., Kaviraj, Sugata, Keel, William C., **Kruk, Sandor J.**, Lintott, Chris J., Nichol, Robert C., Simmons, Brooke D., Smethurst, Rebecca J.: *Galaxy Zoo: Major Galaxy Mergers Are Not a Significant Quenching Pathway*, The Astrophysical Journal, 845, 145, 28 pp. (Aug 2017).
5. Hart, Ross E., Bamford, Steven P., Casteels, Kevin R. V., **Kruk, Sandor J.**, Lintott, Chris J., Masters, Karen L.: *Galaxy Zoo: star formation versus spiral arm number*, Monthly Notices of the Royal Astronomical Society, 468, 1850-1863 (June 2017).
6. Simmons, B. D., Lintott, Chris, Willett, Kyle W., Masters, Karen L., Kartaltepe, Jeyhan S., Huler, Boris, Kaviraj, Sugata, Krawczyk, Coleman, **Kruk, S. J.**, McIntosh, Daniel H., Smethurst, R. J., Nichol, Robert C., Scarlata, Claudia, Schawinski, Kevin, Conselice, Christopher J., Almaini, Omar, Ferguson, Henry C., Fortson, Lucy, Hartley, William, Kocevski, Dale, Koekemoer, Anton M., Mortlock, Alice, Newman, Jeffrey A., Bamford, Steven P., Grogin, N. A., Lucas, Ray A., Hathi, Nimish P., McGrath, Elizabeth, Peth, Michael, Pforr, Janine, Rizer, Zachary, Wuyts, Stijn, Barro, Guillermo, Bell, Eric F., Castellano, Marco, Dahlen, Tomas, Dekel, Avishai, Ownsworth, Jamie, Faber, Sandra M., Finkelstein, Steven L., Fontana, Adriano, Galametz, Audrey, Grtzbach, Ruth, Koo, David, Lotz, Jennifer, Mobasher et al.: *Galaxy Zoo: quantitative visual morphological classifications for 48 000 galaxies from CANDELS*, Monthly Notices of the Royal Astronomical Society, 464, 4420-4447 (Feb 2017).
7. Smethurst, R. J., Lintott, C. J., Simmons, B. D., Schawinski, K., Bamford, S. P., Cardamone, C. N., **Kruk, S. J.**, Masters, K. L., Urry, C. M., Willett, K. W., Wong, O. I.: *Galaxy Zoo: evidence for rapid, recent quenching within a population of AGN host galaxies*, Monthly Notices of the Royal Astronomical Society, 463, 2986-2996 (Dec 2016).