

Peter Creasey C.V.

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Citizenship: UK
Presently in the USA on J-1 visa

Research Interests

Galaxy Formation, Cosmology, Milky Way formation, Dark Matter, Numerical simulation, Hydrodynamics, Collisionless dynamics, Gaussian Random Fields

Education

PhD Astrophysics, Institute for Computational Cosmology, Durham University, England, UK	2008-12
Advisors: Dr. Tom Theuns, Prof. Richard Bower	
Thesis: "Simulating supernova feedback in galaxy disks"	
Master of Arts, University of Cambridge, England	2007
Part III Mathematics (Certificate of Advanced Studies), University of Cambridge	2004
Bachelor of Arts (Mathematics), University of Cambridge	2003

Employed Positions

Postdoctoral Scholar, University of California at Riverside, USA	2015+
Postdoctoral Researcher, Leibniz Institute for Astrophysics (AIP), Potsdam, Germany	2012-15
Assistant Director of Quantitative Research, Calyon Corporate and Investment Bank, London, UK	2005-08
Analyst, Principal Investment Management, Sevenoaks, UK	2004-05

Open Source Software authorship

hfof (author) Friends of friends with spatial hashing github.com/pec27/hfof
Lizard (author) Initial conditions generator for cosmological and zoom simulations github.com/pec27/lizard
smerfs (author) fast realisations of gaussian random fields on the sphere github.com/pec27/smerfs
iccpy (coauthor) Analysis software for large datasets from cosmological simulations github.com/pec27/iccpy
NumPy (contributor) NumPy is the fundamental package for scientific computing with Python www.numpy.org

Service

Referee for MNRAS	2011+
Reviewer for DiRAC (the national high performance computing resource for UK astronomy)	2015+
Colloquium organiser (internal), Leibniz Institute for Astrophysics	2013-15
Vice President of the Riverside Postdoctoral Association	2017-18
Organising committee for the Riverside Postdoctoral Association Symposium 2016 (interdisciplinary)	2016

Students

Ondrej Jaura (Masters, now a PhD student with Ralf Klessen, ITA, Heidelberg, Germany)	2014-15
Poulhazan, P-A. (PhD student at AIP, Potsdam, Germany)	2012+
Sameie, O. (PhD student, UC Riverside)	2015+
Elias, L. (PhD student UC Riverside)	2016+
Koontz, R. & Norelli, S. (Physics undergraduate students at UCR)	2017+

Teaching experience

Computational physics (lecturing), UCR	2016
Teaching asst. Durham University (Mathematical Methods in Physics, Computational projects, Complex analysis workshops, Integral Transforms workshops)	2009-12

Awards and Scholarships

Stampede computer cluster (University of Texas) compute time	2016
Isaac Newton Scholar, Cambridge University	2000-03
Salters Physics award for a top 10 mark in Physics A-level in the UK	2000
Twice won Gold awards at the UK intermediate maths challenge	1994-98
Twice won 1 st prize at the Kingston UK maths competition	

Peer-Reviewed Publications

- Tree-less 3d Friends-of-Friends using Spatial Hashing
Creasey, P. E., (accepted to **Astronomy and Computing**, in press)
- Globular Clusters Formed within Dark Halos I: present-day abundance, distribution and kinematics
Creasey, P., Sales, L.V., Peng, E., Sameie, O., (accepted to **MNRAS**, in press)
- Precision Pollution-The effects of enrichment yields and timing on galactic chemical evolution
Poulhazan, P.A., Scannapieco, C., **Creasey, P.** (**MNRAS**, 480, 4817)
- Stellar Halos in Illustris: Probing the Histories of Milky Way-Mass Galaxies
Elias, L., Sales, L.V., **Creasey**, Cooper, et al. (**MNRAS**, 479, 4004)
- The impact of baryonic discs on the shapes and profiles of self-interacting dark matter haloes
Sameie, O., **Creasey P.**, Yu H.-B., Sales L.V., Vogelsberger M., Zavala, J., (**MNRAS** 479, 359)
- Spreading out and staying sharp - creating diverse rotation curves via baryonic and self-interaction effects
Creasey, P., Sameie, O., Sales, L. V., Yu, H-B., Vogelsberger, M.; Zavala, J., 2017, **MNRAS**, 468, 2283
- Fast generation of isotropic Gaussian random fields on the sphere
Creasey, P. E., Lang, A., 2018, **Monte Carlo Methods and Applications**, 24, 1
- Properties of galaxies in the disc central surface brightness gap
Sorce, J. G., **Creasey, P.**; Libeskind, N. I., 2016, **MNRAS**, 455, 2644
- The Effects of Environment on MW-mass galaxies in a Constrained Simulation of the Local Group
Creasey, P., Scannapieco, C., Nuza, S.E., Yepes, G., Gottlöber, S., Steinmetz, M., 2015, **ApJ**, 800, L4
- The Milky Way and Andromeda galaxies in a constrained hydrodynamical simulation: morphological evolution
Scannapieco, C., **Creasey, P.**, Nuza, S.E., Yepes, G., Gottlöber, S., Steinmetz, M., 2015 **A&A**, 577, 3
- The metallicity of galactic winds
Creasey P., Theuns T., Bower R. G., 2014, **MNRAS**, 446, 2125
- How supernova explosions power galactic winds
Creasey P., Theuns T., Bower R. G., 2013, **MNRAS**, 429, 1922
- Numerical Overcooling in Shocks
Creasey P., Theuns T., Bower R. G., Lacey C. G., 2011, **MNRAS**, 415, 3706

Miscellaneous Experience

- Extensive experience in Python, C, some git, Fortran and C++. Contributed code to Gadget (C. Scannapieco version), Arepo (bug fixes), familiar with Flash 2004+
- Completed Stanford University online course in Machine Learning 2017
- Contracted by Moon Collider (artificial intelligence software) for optimization & control problems involving spaceship trajectories for the computer game Star Citizen 2015
- Native English speaker, conversational German (B1 equiv.)

Talks & Posters

- UCR Data Science Seminar (invited talk) Oct 2018
Making light work of dark matter - New algorithms for astronomical matter distributions
- UCR Summer Physics Teacher Academy 2018 June 2018
From the Big Bang to 2018: Simulating The Formation of Galaxies
- MITP workshop “Tensions in the Λ CDM paradigm” (invited talk) May 2018
The dark hearts of dwarves and globular clusters - Predictions for dark matter content in low mass objects
- UCR Cosmic Thursdays (public talks) Feb 2018
From the Big Bang to 2018: Simulating The Formation of Galaxies Through Cosmic Time
- UCLA Nov 2017
The dark hearts of dwarves and globular clusters - Predictions for dark matter content in low mass objects (invited talk)
- Kavli Institute for Theoretical Physics workshop “The Galaxy- Halo Connection Across Cosmic Time” July 2017
Do metal-poor globular clusters form in the centers of high-redshift halos?
- UC Davis (Invited talk) Feb 2017
Dwarf Galaxy Formation in a Universe with Self-Interacting Dark-Matter
- Potsdam 2016 Sep 2016
Self-Interacting Dark-Matter as a Mechanism for Dwarf Cores
- Santarcangelo workshop “Crossing the Rubicon” Aug 2016
Star formation driven ejection of gas and chemicals and their effects on galaxy evolution (poster)
- Albanova (Stockholm) workshop “How Galaxies form Stars” Aug 2016
Blustering and Blasting - Stellar feedback and its Chemical Tracers
- UC Santa Cruz (workshop on Galaxy formation) Aug 2016
Scattering in Dwarf Galaxy Rotation Curves from Self- interacting DM and Baryonic Effects
- Harvard (Institute for Theory and Computation) May 2016
Heating matter at the centres of halos, numerical experiments with supernovae and self-interacting DM
- UCR Science Hour (interdisciplinary seminar) Feb 2016
From the Universe to UCR - The Formation of Galaxies and their Simulation
- UCR Astronomy Seminar, Feb 2016 Feb 2016
Numerical simulations of Galaxy Formation regulated by Stellar Feedback
- Hamburg University, Germany (invited talk) Dec 2014
Numerical Simulations of Galaxies and their Regulation by Star Formation
- Gas in and Around Galaxies - Ringberg, Germany May 2014
Constituents of Star-Formation driven outflows (invited talk)
- Virgo Meeting - Leiden, The Netherlands Jan 2014
The Metal Ejection fraction of Galaxies (talk)
- Constrained Local UniverseE workshop (CLUES), Madrid, Spain May 2013
Supernova feedback in cosmological simulations (talk)
- AIP House-Colloquium - Potsdam, Germany Nov 2012
Supernova feedback at high-resolution (invited talk)
- New Horizons in Computational Astrophysics - Davos, Switzerland Jan 2012
Integrating SNe in Disk Galaxies (talk)
- Virgo Meeting - Durham, UK Dec 2011
Supernova feedback at high-resolution (talk)
- Cosmocomp Workshop - Leiden, The Netherlands Sep 2011
Supernova Feedback, Cooling and the ISM (invited talk)
- Dirac Science Day - University College London, England Sep 2011
Regulation of Galaxy Growth (poster)
- Ustinov Seminar - Durham, UK (public talk) Oct 2010
Cosmology and the History of the Universe
- Virgo Meeting - Heidelberg, Germany Sep 2010
Radiative Shocks and Cold Accretion (talk)
- UK SPH - Manchester University, England Sep 2010
Cooling tails and Cold Accretion (talk)
- UK SPH - Nottingham University, England Aug 2009
Cooling in SPH simulations (talk)