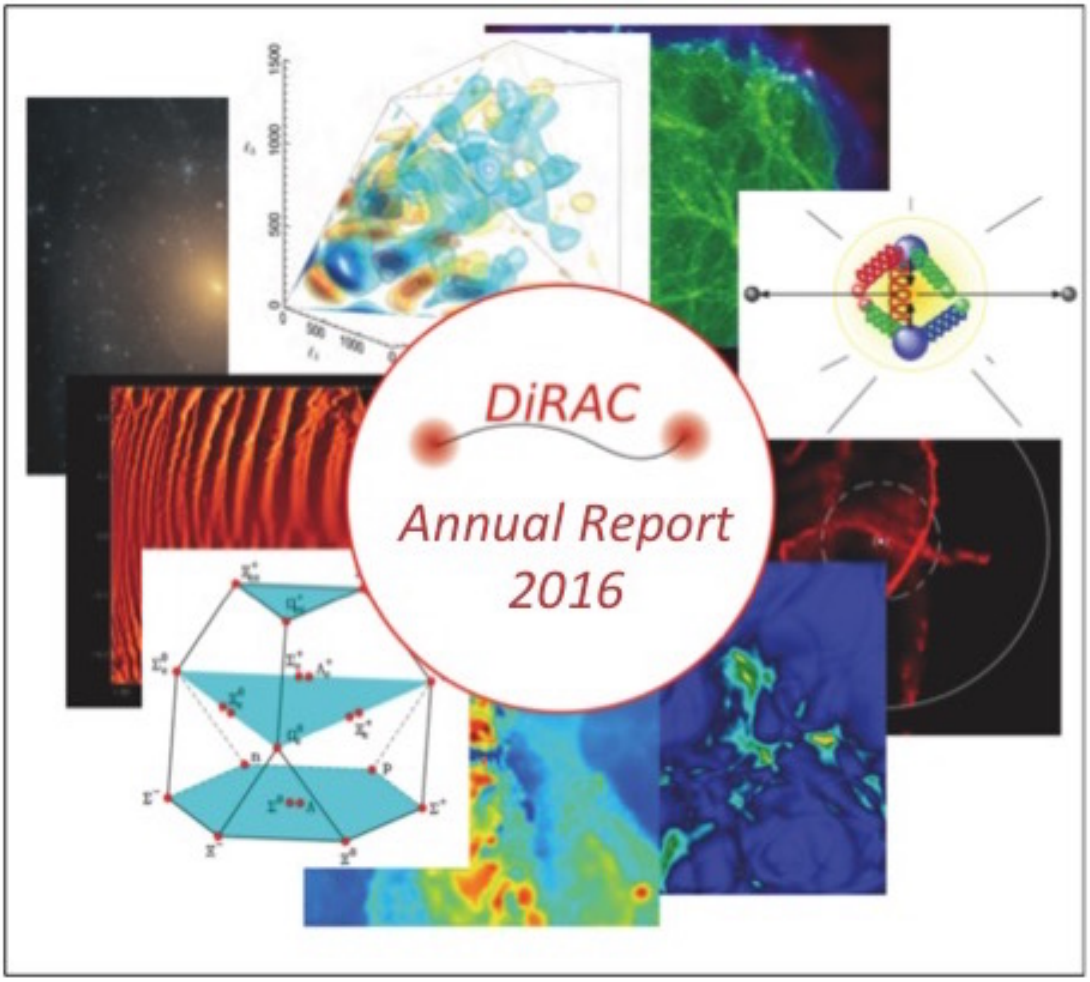
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2016

DiRAC Publications 2016

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dp001: Stellar coronae and winds
PI: Dr Aline Vidotto
Science Area: Astronomy & Astrophysics
Machines: Data Analytic
Institute: Trinity College Dublin

Magnetic Field and Wind of Kappa Ceti: Toward the Planetary Habitability of the Young Sun When Life Arose on Earth
doNascimento, J. -D., Jr., Vidotto, A. A., Petit, P., et al.
2016, ApJ, 10.3847/2041-8205/820/1/L15

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dp002: The COSMOS Consortium: Fundamental Cosmology and the Origin of Structure in the Universe
PI: Prof. Paul Shellard
Science Area: Astronomy & Astrophysics
Machines: Data Centric, SMP, Data Analytic, Complexity
Institute: University of Cambridge

Crowdsourcing quality control for Dark Energy Survey images
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dp004: VIRGO Consortium
PI: Prof. Carlos Frenk
Science Area: Astronomy & Astrophysics
Machines: Data Centric
Institute: Durham University

The Copernicus Complexio: statistical properties of warm dark matter haloes
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dp005: Theoretical Astrophysics at Leicester
PI: Dr Mark Wilkinson
Science Area: Astronomy & Astrophysics
Machines: Data Analytic, Complexity
Institute: University of Leicester

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A simple way to improve AGN feedback prescription in SPH simulations
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2016, MNRAS, 10.1093/mnras/stv2971

On the structure of tidally disrupted stellar debris streams
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Tidal Downsizing model - IV. Destructive feedback in planets
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dp006: Extreme QCD
PI: Prof. Chris Allton
Science Area: Particle Physics
Machines: BG/Q
Institute: Swansea University

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dp007: Hadron physics of up, down and strange quarks
PI: Dr Roger Horsley
Science Area: Particle Physics

Machines: BG/Q
Institute: University of Edinburgh

Isospin splittings of meson and baryon masses from three-flavor lattice QCD + QED
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dp008: UKQCD DWF: physics with dynamical chiral quarks
PI: Dr Andreas Juettner
Science Area: Particle Physics
Machines: BG/Q
Institute: University of Southampton

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dp009: Non perturbative BSM dynamics
PI: Dr Antonio Rago
Science Area: Particle Physics
Machines: BG/Q
Institute: Plymouth University

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dp010: UKMHD Consortium: 2) Solar Atmosphere
PI: Prof. Alan Hood
Science Area: Astronomy & Astrophysics
Machines: BG/Q, Data Analytic, Wilkes GPU
Institute: University of St Andrews

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Hughes, DavidW., Cattaneo, Fausto
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dp011: Planet
PI: Prof. Richard Nelson
Science Area: Astronomy & Astrophysics
Machines: Complexity
Institute: Queen Mary University of London

Linear analysis of the vertical shear instability: outstanding issues and improved solutions
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The stress-pressure relationship in simulations of MRI-induced turbulence
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dp012: Black Holes
PI: Dr Debora Sijacki
Science Area: Astronomy & Astrophysics
Machines: Data Centric, Data Analytic, Complexity
Institute: University of Cambridge

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dp014: Galactic scale studies of star formation
PI: Prof. Ian Bonnell
Science Area: Astronomy & Astrophysics
Machines: Complexity
Institute: University of St Andrews

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Smilgys, Romas, Bonnell, IanA.
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dp015: High Performance Computing Support for Exeter Astrophysics
PI: Prof. Matthew Bate
Science Area: Astronomy & Astrophysics
Machines: BG/Q, Data Centric, Complexity
Institute: Universiry of Exeter

A Jacobian-free Newton-Krylov method for time-implicit multidimensional hydrodynamics. Physics-based preconditioning for sound waves and thermal diffusion
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The effects of consistent chemical kinetics calculations on the pressure-temperature profiles and emission spectra of hot Jupiters
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dp016: Nephthys: A New Generation of Galaxy Zooms
PI: Dr Adrianne Slyz
Science Area: Astronomy & Astrophysics
Machines: Complexity
Institute: University of Oxford

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dp019: HPQCD High Precision QCD Collaboration
PI: Prof. Christine Davies
Science Area: Particle Physics
Machines: Data Analytic
Institute: University of Glasgow

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dp020: EXOMOL
PI: Prof. Jonathon Tennyson
Science Area: Astronomy & Astrophysics
Machines: SMP, Data Analytic
Institute: University College London

ExoMol molecular line lists - XIII. The spectrum of CaO
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dp031: Kinetic Plasma Turbulence
PI: Prof. David Burgess
Science Area: Astronomy & Astrophysics
Machines: Complexity
Institute: Queen Mary University of London

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Microstructure in two- and three-dimensional hybrid simulations of perpendicular collisionless shocks
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dp032: Precision LHC Phenomenology
PI: Dr Andrea Banfi
Science Area: Astronomy & Astrophysics
Machines: Complexity
Institute: University of Sussex

Two-Jet Rate in e^+e^- at Next-to-Next-to-Leading-Logarithmic Order
Banfi, Andrea, McAslan, Heather, Monni, PierFrancesco, et al.

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dp033: Radiative Transfer in Type I Supernovae
PI: Dr Stuart Sim
Science Area: Astronomy & Astrophysics
Machines: Complexity
Institute: Queen's University Belfast

Type Ia supernovae from violent mergers of carbon-oxygen white dwarfs: polarization signatures
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Predicting polarization signatures for double-detonation and delayed-detonation models of Type Ia supernovae
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2016, MNRAS, 10.1093/mnras/stw1733

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dp034: Numerical simulations of black hole binaries
PI: Dr Mark Hannam
Science Area: Astronomy & Astrophysics
Machines: Data Centric
Institute: University of Cardiff

Observation of Gravitational Waves from a Binary Black Hole Merger
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dp040: Stellar Structure and Nucleosyntheis
PI: Dr Raphael Hirschi
Science Area: Astronomy & Astrophysics
Machines: Data Centric, SMP
Institute: Keele University

Uncertainties in the production of p nuclei in massive stars obtained from Monte Carlo variations
Rauscher, T., Nishimura, N., Hirschi, R., et al.
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dp041: Spectral Modelling of Type 1b/c Supernovae
PI: Dr Anders Jerkstrand
Science Area: Astronomy & Astrophysics
Machines: Data Analytic
Institute: Queen's University Belfast

Nebular spectra of pair-instability supernovae
Jerkstrand, A., Smartt, S. J., Heger, A.
2016, MNRAS, 10.1093/mnras/stv2369

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dp047: DISCSIM
PI: Prof. Cathy Clarke
Science Area: Astronomy & Astrophysics
Machines: SMP, Data Analytic
Institute: University of Southampton

Rapid radiative clearing of protoplanetary discs
Haworth, ThomasJ., Clarke, CathieJ., Owen, JamesE.
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Booth, RichardA., Clarke, CathieJ.
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Rosotti, GiovanniP., Juhasz, Attila, Booth, RichardA., et al.
2016, MNRAS, 10.1093/mnras/stw691

Photochemical-dynamical models of externally FUV irradiated protoplanetary discs
Haworth, ThomasJ., Boubert, Douglas, Facchini, Stefano, et al.
2016, MNRAS, 10.1093/mnras/stw2280

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dp048: Convection in Stars
PI: Dr Isabelle Baraffe
Science Area: Astronomy & Astrophysics
Machines: Complexity, Wilkes GPU
Institute: Universiry of Exeter

Spherical-shell boundaries for two-dimensional compressible convection in a star
Pratt, J., Baraffe, I., Goffrey, T., et al.
2016, A&A, 10.1051/0004-6361/201628296

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dp050: Simulating gravitational instabilities that drive vertical structure formation in quiescent prominences
PI: Dr Andrew Hillier
Science Area: Astronomy & Astrophysics
Machines: Data Centric
Institute: Universiry of Exeter

The formation and evolution of reconnection-driven, slow-mode shocks in a partially ionised plasma
Hillier, A., Takasao, S., Nakamura, N.
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dp051: Excited Charmonia from Lattice QCD
PI: Dr Christopher Thomas
Science Area: Particle Physics
Machines: Data Analytic
Institute: University of Cambridge

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PI: Dr Michael Aumer
Science Area: Astronomy & Astrophysics
Machines: SMP, Data Analytic
Institute: University of Oxford

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dp060: Temperature dependent cross-sections for large hydrocarbons
PI: Dr Sergey Yurchenko
Science Area: Astronomy & Astrophysics
Machines: SMP, Data Analytic, Wilkes GPU
Institute: University College London

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PI: Dr Daisuke Kawata
Science Area: Astronomy & Astrophysics
Machines: Data Analytic
Institute: University College London

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PI: Dr Carlo Barbieri
Science Area: Particle Physics
Machines: Data Analytic, Complexity
Institute: University of Surrey

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