

Evan Patrick O'Connor – Biographical Sketch

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Professional preparation

University of Prince Edward Island	Charlottetown, Canada	B.Sc., Physics 2007
California Institute of Technology	Pasadena, CA	Ph.D, Physics 2012
Canadian Institute of Theoretical Astrophysics	Toronto, Canada	Postdoc; 2012 – 2014
North Carolina State University	Raleigh, NC	Postdoc; 2014 – 2017

Appointments

Assistant Professor	4/2017 –
Department of Astronomy Stock University and The Oskar Klein Centre Stockholm, Sweden	
Hubble Fellow	9/2014 – 4/2017
North Carolina State University, Raleigh, NC	
Postdoctoral Fellow	9/2012 – 8/2014
Canadian Institute of Theoretical Astrophysics, Toronto, Canada	

Five Publications Most Relevant to This Proposal

- E. O'Connor 2015, *An Open-Source Neutrino Radiation Hydrodynamics Code for Core-Collapse Supernovae*, ApJS, 219, 24
- E. O'Connor & S.M. Couch 2015, *Two Dimensional Core-Collapse Supernova Explosions Aided by General Relativity with Multidimensional Neutrino Transport*, arXiv:1511.07443
- S.M. Couch, E. O'Connor 2014, *High-Resolution Three-Dimensional Simulations of Core-Collapse Supernovae in Multiple Progenitors*, ApJ, 785, 123
- C. Sullivan, E. O'Connor, R. G. T. Zegers, T. Grubb, S. M. Austin, 2016 *The Sensitivity of Core-Collapse Supernovae to Nuclear Electron Capture* ApJ 816 44
- E. O'Connor & C. D. Ott, 2011 *Black Hole Formation in Failing Core-Collapse Supernovae*, ApJ 730 70

Research Interests & Expertise

- Improving computational simulations of relativistic astrophysical systems (core-collapse supernovae, mergers involving neutron stars, etc.) through detailed microphysics inputs and implementations including:
 - Neutrino radiation transport & interactions
 - Finite-temperature equations of state
 - Elucidating the connection between stellar evolution and direct observables of core-collapse supernovae (i.e. neutrinos, or perhaps the overall success/failure)
 - Predicting direct observational signatures of the core-collapse supernovae engine via neutrinos and gravitational waves
 - Advocating for and providing open-source and open-access scientific tools
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Synergistic Activities

- Guest Editor of Journal of Physics: G, Focus issue on core-collapse supernova neutrino and micro-physics
- Principle maintainer: GR1D open-source core-collapse supernovae code; NuLib, open-source neutrino interaction library

Collaborators

E. Abdikamalov (Nazarbayev University); A. Arcones (Technische Universität Darmstadt); S. Austin (Michigan State University); O.L. Caballero (Guelph University); S.M. Couch (Michigan State University); M. B. Deaton (North Carolina State University); P. Diener (Louisiana State University); M. D. Duez (Washington State University); R. Fernandez (University of Alberta); F. Foucart (UC Berkeley); C. Fröhlich (North Carolina State University); T. Grubb (Michigan State University); R. Haas (National Center for Supercomputing Applications); C.J. Horowitz (Indiana University); L. Kidder (Cornell); L. Lehner (Perimeter); S. Liebling (Long Island University); G. McLaughlin (North Carolina State University); D. Neilson (Brigham Young University); C.D. Ott (California Institute of Technology); C. Palenzuela (University of Balearic Islands, Palma); H. Pfeiffer (Canadian Institute of Theoretical Astrophysics); D. Radice (Princeton University/Institute for Advanced Study); S. Richers (California Institute of Technology); L.F. Roberts (Michigan State University); M. Scheel (California Institute of Technology); E. Schnetter (Perimeter Institute for Theoretical Physics); C. Sullivan (Michigan State University); A. Schwenk (Technische Universität Darmstadt); R. G. T. Zegers (Michigan State University);