CV - Dr. Evan Patrick O'Connor

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Current Appointments

Associate Professor	04/2021 –
Docent	09/2021 –
Department of Astronomy & The Oskar Klein Centre	
Stockholm University, Stockholm, Sweden	

Previous Appointments

Assistant Professor, Stockholm University	04/2017 – 03/2021
Hubble Fellow, North Carolina State University	09/2014 – 03/2017
Post-Doctoral Fellow, Canadian Institute for Theoretical Astrophysics	09/2012 – 09/2014
Post-Doctoral researcher, California Institute of Technology	07/2012 – 08/2012
Research Assistant, TRIUMF Theory Group	09/2006 – 12/2006
	06/2007 – 09/2007
Research Assistant, TRIUMF Dragon Group	05/2006 – 08/2006
Research Assistant, Dominion Radio Astrophysical Observatory	01/2005 – 04/2005
	01/2007 – 04/2007
Research Assistant, University of Prince Edward Island Physics	05/2004 – 08/2004
	05/2005 – 08/2005

Education

Ph.D.	10/2007 – 06/2012
Ph.D. Advisor - Christian Ott	
California Institute of Technology, Pasadena, CA, USA	
B. Sc. in Honours Physics, Co-operative Education	09/2002 – 05/2007
Honours Advisor - Sheldon Opps	
University of Prince Edward Island, PEI, Canada	

Research Interests

- Computational Modelling of Astrophysical Transients including core-collapse supernovae and mergers involving matter by using and developing state-of-the-art computational methods and techniques, and detailed nuclear and particle physics inputs.
- Unraveling the stellar evolution of massive stars through predictions of multimessenger observables of core-collapse supernovae and neutron star mergers via electromagnetic waves, neutrinos, and gravitational waves.
- Advocating for and providing open-source and open-access scientific tools.

Publications, Conference Proceedings, Theses, and Presentations

70 publications in peer reviewed journals (h-index of 39)
10 Conference proceedings
66 Invited presentations/lectures
2 submitted publications
2 Theses & 1 Book Chapter

Academic Honors and Awards

Hubble Fellowship, 2014-2017
CITA Postdoctoral Fellowship, 2012-2014
NSERC PGS-D Fellowship, 2009-2012
NSERC CGS Fellowship, 2007, declined
Full Tuition UPEI Scholarship 2002-2007
TAUP Theory Poster Award, 2013
CITA National Fellowship 2012, declined
TRIUMF Symposium Award, 2007
TRIUMF Summer Scholarship, 2006
NSERC USRA 2005

Professional Services & Memberships

Principal Maintainer of `GR1D`, an open-source code for studying stellar collapse & core-collapse supernovae.
Principal Maintainer of `NuLib`, an open-source library of neutrino interactions for astrophysical simulations.
Contributor to stellarcollapse.org, a community portal for supporting research in stellar collapse, core-collapse supernovae, neutron stars and gamma-ray bursts.

Referee for: The Astrophysical Journal Letters, The Astrophysical Journal, Physical Review Letters, Physical Review D, Monthly Notices of the Royal Astronomical Society, New Astronomy, Publications of the Astronomical Society of Japan, European Physical Journal A, Astronomy & Astrophysics, Chinese Physics C, Journal of Cosmology and Astroparticle physics
Review Panel: Hubble Space Telescope TAC, Cycle 23, NASA Earth and Space Science Fellowship NSF Division of Astronomical Sciences, NAISS National Allocation Committee
Conference Organizer: SNEWS2.0 (IAC), MICRA2019 (co-chair), MICRA2023 (co-chair) Nordita Workshop on Extragalatic and Galactic Neutrino Astronomy

American Physical Society 2009 –
The Oskar Klein Centre Steering Group 2018 –
International Astronomical Union 2018 –

Scientific Outreach

Senioruniversitetet Stockholm - 2 Lectures on Black holes - 2023
Stockholm University Telescope Viewing - 2018
Astronomy on Tap: Stockholm - Lecture on Massive stars - 2018
NCMNS Science Cafe - Hubble @ 25, April 2015
NCSU Physics Open-Viewing and Raleigh Astronomy Days - 2014-2016
UofT SN 2014J Observing - Winter 2014
Toronto Public Library - Public lecture on Massive Stars, Spring 2013
Caltech Astronomy Outreach - Transit of Venus and Solar Eclipse Viewing, SNe viewing, 2011-2012
UPEI Astronomy Outreach - Monthly viewing of the night sky, 2005-2007

Teaching & Mentoring Experience

- Advisor of 3 Stockholm University postdoctoral researchers
- Advisor of 3 Stockholm University graduate students
- Advisor of 4 Stockholm University master students
- Advisor of 4 Stockholm University Bachelor projects
- Teacher of Astrophysical Radiation Processes, Fall 2018, 2020, and 2022, Stockholm University
- Teacher of Stellar Structure and Evolution, Fall 2018, 2019, and 2020, Stockholm University

- Teacher of High Energy Astrophysics, Fall 2022, Stockholm University
- Teacher of Astrophysical Gas Dynamics, Fall 2023, Stockholm University
- Lecturer at 6 summer programs/schools on Nuclear Astrophysics, Supernova, and related topics (2013-2024)
- Co-mentor of Caltech SURF student working on pair-instability supernovae (2010), mentor of NSERC USRA summer student working on neutrino interactions in supernovae (2013), mentor of NCSU undergraduate student working on neutrino scattering in NuLib (2014-2015), Mentor of 2 NCSSM high school students on a 2 week computational project on supernova remnants (2015), co-mentor of student at the Kavli Summer Program in Astrophysics 2017 working on multimessanger signals from rotating core-collapse supernovea.
- Head teaching assistant for PH002, Caltech's core physics class for non-physics majors covering quantum and statistical physics: 2007/08 and 2008/09. Laboratory teaching assistant for Caltech's PH003: Fall term, 2009/10. Undergraduate teaching assistant for UPEI's freshman and sophomore physics laboratories, sophomore and junior theoretical physics classes: 2003/04 through 2005/06

Refereed Publications

S. Zha, O. Eggenberger Andersen, **E. O'Connor**, *Unveiling the Nature of Gravitational-Wave Emission in Core-collapse Supernovae with Perturbative Analysis* accepted PRD 2024

Z. Lin, S. Zha, **E. O'Connor**, A. Steiner, *Detectability of hadron-quark phase transition in neutrino signals of failing core-collapse supernova* PRD **109** 023005 2024

M. Gogilashvili, J. W. Murphy, **E. O'Connor** *The force explosion condition is consistent with spherically symmetric CCSN explosions* MNRAS **524** 4109 2023

B. L. Barker, **E. O'Connor**, S.M. Couch, *Inferring Type II-P Supernova Progenitor Masses from Plateau Luminosities* ApJL **944** L2 2023

A. da Silva Schneider, **E. O'Connor**, *A Parameterized Neutrino Emission Model to Study Mass Ejection in Failed Core-collapse Supernovae* ApJ **942** 16 2023

S. Zha, **E. O'Connor**, *Impact of rotation on the multimessenger signatures of a hadron-quark phase transition in core-collapse supernovae* PRD **106** 123037 2022

Z. Johnson, S. Wasik, R. Titus, M. Warren, **E. O'Connor**, R. Zegers, S. Couch, *Comparison of Updated Electron Capture Rates in the N=50 Region using 1D Simulations of Core-collapse Supernovae* ApJ **939** 15 2022

A. Betranhandy, **E. O'Connor**, *Neutrino driven explosions aided by axion cooling in multidimensional simulations of core-collapse supernovae* PRD **106** 063019 2022

B. L. Barker, C.E. Harris, M. L. Warren, **E. O'Connor**, S.M. Couch, *Connecting the Light Curves of Type IIP Supernovae to the Properties of their Progenitors* ApJ **934** 67 2022

S. Zha, **E. O'Connor**, S. Couch, S.-C. Leung, K. Nomoto, *Hydrodynamic simulations of electron-capture supernovae: progenitor and dimension dependence* MNRAS **513** 1317 2022

S. Gullin, **E. O'Connor**, J.-S. Wang, J. Tseng, *Neutrino Echos following Black Hole Formation in Core-collapse Supernovae* ApJ **926** 212 2022

O. Eggenberger Andersen, S. Zha, A. da Silva Schneider, A. Betranhandy, S. Couch, **E. O'Connor**, *Equation-of-state Dependence of Gravitational Waves in Core-collapse Supernovae* ApJ **923** 201 2021

J.-S. Wang, J. Tseng, S. Gullin, **E. O'Connor**, *Nonradial neutrino emission upon black hole formation in core collapse supernovae* PRD **104** 104030 2021

A. Baxter *et al.*, *SNEWPY: A Data Pipeline from Supernova Simulations to Neutrino Signals* ApJ **925** 107 2022 & JOSS **6** 3772 2021

D. Gizzi, C. Lundman, **E. O'Connor**, S. Rosswog, A. Perego, *Calibration of the Advanced Spectral Leakage scheme for neutron star merger simulations, and extension to smoothed-particle hydrodynamics* MNRAS **505** 2575 2021

K. Abe *et al.*, *Supernova Model Discrimination with Hyper-Kamiokande* ApJ **916** 15 2021

M. Pajkos, M. Warren, S. Couch, **E. O'Connor**, K.-C. Pan, *Determining the Structure of Rotating Massive Stellar Cores with Gravitational Waves* ApJ **914** 80 2021

S. Zha, **E. O'Connor**, A. da Silva Schneider, *Progenitor Dependence of Hadron-quark Phase Transition in Failing Core-collapse Supernovae* ApJ **911** 74 2021

L. Boccioli, G. J. Mathews, **E. O'Connor**, *General Relativistic Neutrino-Driven Turbulence in One-Dimensional Core-Collapse Supernovae* ApJ **912** 29 2021

S. Al Kharusi, + 70 others including **E. O'Connor** *SNEWS 2.0: A Next-Generation SuperNova Early Warning System for Multi-messenger Astronomy* New Journal of Physics **23** 031201 2021

A. Betranhandy and **E. O'Connor** *Impact of neutrino pair-production rates in core-collapse supernovae* PRD **102** 123015 2020

M. L. Warren, S. M. Couch, **E. O'Connor**, V. Morozova, *Constraining properties of the next nearby core-collapse supernova with multi-messenger signals* ApJ **898** 139 2020

S. Zha, **E. O'Connor**, M.-C. Chu, L.-M. Lin, S.M. Couch, *Gravitational-wave Signature of a First-order Quantum Chromodynamics Phase Transition in Core-Collapse Supernovae* PRL 125 051102

A. S. Schneider, **E. O'Connor**, E. Granqvist, A. Betranhandy, S.M. Couch *Equation of State and Progenitor Dependence of Stellar-Mass Black-Hole Formation* ApJ **894** 4 2020

S.M. Couch, M.L. Warren, **E. O'Connor** *Simulating Turbulence-aided Neutrino-driven Core-collapse Supernova Explosions in One Dimension* ApJ **890** 127 2020

D. Gizzi, **E. O'Connor**, S. Rosswog, A. Perego, R. M. Cabezón, L. Nativi *A multidimensional implementation of the Advanced Spectral neutrino Leakage scheme* MNRAS **490** 4211 2019

J.R. Westernacher-Schneider, **E. O'Connor**, E. O'Sullivan, I. Tamborra, M.-R. Wu, S. M. Couch, F. Malmenbeck *Multimessenger Asteroseismology of Core-Collapse Supernovae* Phys. Rev. D **100** 123009 2019

A. S. Schneider, L. F. Roberts, C. D. Ott, **E. O'Connor** *Equation of state effects in the core collapse of a* 20-$M_\odot$ *star* PRC **100** 055802 2019

M. A. Pajkos, S. M. Couch, K.-C. Pan, **E. O'Connor**, *Features of Accretion-phase Gravitational-wave Emission from Two-dimensional Rotating Core-collapse Supernovae* Astrophys. J **878** 13 2019

E. Kundu, P. Lundqvist, E. Sorokina, M. A. Pérez-Torres, S. Blinnikov, **E. O'Connor**, M. Ergon, P. Chandra, B. Das, *Evolution of Progenitors of SNe 1993J and 2011dh Revealed Through Late Time Radio and X-ray Studies* Astrophys. J **875** 17 2019

K.-C. Pan, C. Mattes, **E. O'Connor**, S.M. Couch, A. Perego, A. Arcones, *The Impact of Different Neutrino Transport Methods on Multidimensional Core-collapse Supernova Simulations* Journal of Phys. G **46** 014001 2019

M. B. Deaton, **E. O'Connor**, Y. L. Zhu, A. Bohn, J. Jesse, F. Foucart, M. D. Duez, G. C. McLaughlin, *Elastic Scattering in General Relativistic Ray Tracing for Neutrinos* PRD **98** 103014 2018

E. O'Connor, R. Bollig, A. Burrows, S. Couch, T. Fischer, H.-T. Janka, K. Kotake, E. J. Lentz, M. Liebendörfer, O. E. B. Messer, A. Mezzacappa, T. Takiwaki, D. Vartanyan, *Global Comparison of Core-Collapse Supernova Simulations in Spherical Symmetry* Journal of Phys. G **45** 104001 2018

E. O'Connor, S. Couch, *Exploring Fundamentally Three-dimensional Phenomena in High-fidelity Simulations of Core-collapse Supernovae*, Astrophys. J **865** 81 2018

W. Brege, M.D. Duez, F. Foucart, M. B. Deaton, J. Caro, D. A. Hemberger, L.E. Kidder, **E. O'Connor**, H.P. Pfeiffer, M. A. Scheel,*Black hole-neutron star mergers using a survey of finite-temperature equations of state* PRD **98** 063009 2018

E. O'Connor, S. Couch, *Two Dimensional Core-Collapse Supernova Explosions Aided by General Relativity with Multi-dimensional Neutrino Transport*, Astrophys. J. **854** 63 2018

S. Richers, C.D. Ott, E. Abdikamalov, **E. O'Connor**, Sullivan, C. *Equation of State Effects on Gravitational Waves from Rotating Core Collapse*, Phys. Rev. D **95** 063019 2017

C. J. Horowitz, O. L. Caballero, Zidu Lin, **E. O'Connor**, A. Schwenk *Neutrino-nucleon scattering in supernova matter from the virial expansion* Phys. Rev. C **95** 025801 2017

F. Foucart, **E. O'Connor**, L. Roberts, L. E. Kidder, H. P. Pfeiffer, M. A. Scheel, *Impact of an improved neutrino energy estimate on outflows in neutron star merger simulations*, Phys. Rev. D **94** 123016 2016

L. Roberts, C.D. Ott, R. Haas, **E. O'Connor**, P. Diener, E. Schnetter, *General Relativistic Three-Dimensional Multi-Group Neutrino Radiation-Hydrodynamics Simulations of Core-Collapse Supernovae*, Astrophys. J. **831** 98 2016

L. Lehner, S. L. Liebling, C. Palenzuela, Caballero, O. L., **E. O'Connor**, M. Anderson, D. Neilson, *Unequal mass binary neutron star mergers and multimessenger signals*, CQG **33** 184002 2016

F. Foucart, R. Haas, M. D. Duez, **E O'Connor**, C. D. Ott, L. Roberts, L. E. Kidder, J. Lippuner, H. P. Pfeiffer, M. A. Scheel, *Low mass binary neutron star mergers : gravitational waves and neutrino emission* Phys. Rev. D. **93** 044019 2016

C. Sullivan, **E. O'Connor**, R. G. T. Zegers, T. Grubb, S. M. Austin, *The Sensitivity of Core-Collapse Supernovae to Nuclear Electron Capture* Astrophys. J. **816** 44 2016

S. Richers, D. Kasen, **E. O'Connor**, R. Fernandez, C.D. Ott, *Monte Carlo Neutrino Transport Through Remnant Disks from Neutron Star Mergers*, Astrophys. J. **813** 38 2015

C. Palenzuela, S. Liebling, D. Neilsen, L. Lehner, Caballero, O. L., **E. O'Connor**, M. Anderson, *Effects of the micro-physical Equation of State in the mergers of magnetized Neutron Stars With Neutrino Cooling*, Phys. Rev. D **92**, 044045 2015

E. O'Connor, *An Open-Source Neutrino Radiation Hydrodynamics Code for Core-Collapse Supernovae* Astrophys. J. Supp., **219**, 24 2015

F. Foucart, **E. O'Connor**, L. Roberts, M. D. Duez, R. Haas, L. E. Kidder, C. D. Ott, H. P. Pfeiffer, M. A. Scheel, B. Szilagyi. *Post-merger evolution of a neutron star-black hole binary with neutrino transport* Phys. Rev. D **91**, 124021 2015

F. Foucart, M. B. Deaton, M. D. Duez, **E. O'Connor**, C. D. Ott, R. Haas, L. E. Kidder, H. P. Pfeiffer, M. A. Scheel, B. Szilagyi. *Neutron star-black hole mergers with a nuclear equation of state and neutrino cooling: Dependence in the binary parameters* Phys. Rev. D **90**, 024026 2014

J. Kaplan, C. D. Ott, **E. O'Connor**, K. Kiuchi, L. Roberts, M. Duez, *The Influence of Thermal Pressure on Hypermassive Neutron Star Merger Remnants* Astrophys. J **790** 19 2014

D. Neilsen, S. Liebling, M. Anderson, L. Lehner, **E. O'Connor**, C. Palenzuela, *Magnetized Neutron Stars With Realistic Equations of State and Neutrino Cooling* Phys. Rev. D **89**, 104029 2014

S. M. Couch, **E. O'Connor**, *High-Resolution Three-Dimensional Simulations of Core-Collapse Supernovae in Multiple Progenitors* Astrophys. J, **785** 123 2014

M. B. Deaton, M. D. Duez, F. Foucart, **E. O'Connor**, C. D. Ott, L. E. Kidder, C. Muhlberger, M. A. Scheel, B. Szilagyi. *Black Hole-Neutron Star Mergers with a Hot Nuclear Equation of State: Outflow and Neutrino-Cooled Disk for a Low-Mass, High-Spin Case* Astrophys. J, **776** 47 2013

C. D. Ott, E. Abdikamalov, P. Mösta, R. Haas, S. Drasco, **E. O'Connor**, C. Reisswig, C. Meakin, E. Schnetter, *General-Relativistic Simulations of Three-Dimensional Core-Collapse Supernovae*, Astrophys. J., **768** 115, 2013

E. O'Connor , C. D. Ott, *The Progenitor Dependence of the Preexplosion Neutrino Emission in Core-Collapse Supernovae* Astrophys. J, **762** 126, 2013

C. J. Horowitz, G. Shen, **E. O'Connor**, C. D. Ott, *Charged current neutrino interactions in core-collapse supernovae in a*

virial expansion Phys. Rev. C **86** 065806, 2012

E. Abdikamalov, A. Burrows, C. D. Ott, F. Löffler, **E. O'Connor**, J. Dolence, E. Schnetter, *A New Monte Carlo Method for Time-Dependent Neutrino Radiation Transport*, Astrophys. J., **755** 111, 2012

C. D. Ott, E. Abdikamalov, **E. O'Connor**, C. Reisswig, R. Haas, P. Kalmus, S. Drasco, A. Burrows, E. Schnetter, *Correlated Gravitational Wave and Neutrino Signals from General-Relativistic Rapidly Rotating Iron Core Collapse*, Phys. Rev. D **86** 024026, 2012

L. Dessart, **E. O'Connor**, C. D. Ott, *The Arduous Journey to Black-Hole Formation in Potential Gamma-Ray Burst Progenitors* Astrophys. J. **754** 76, 2012

B. Dasgupta, **E. O'Connor**, C. D. Ott, *The Role of Collective Neutrino Flavor Oscillations in Core-Collapse Supernova Shock Revival* Phys. Rev. D, **85** 065008, 2012

G. Shen, C.J. Horowitz, **E. O'Connor**, *Second relativistic mean field and virial equation of state for astrophysical simulations* Phys. Rev. C **83** 065808, 2011

C. D. Ott, C. Reisswig, E. Schnetter, **E. O'Connor**, U. Sperhake, F. Löffler, P. Diener, E. Abdikamalov, I. Hawke, A. Burrows, *Dynamics and Gravitational Wave Signature of Collapsar Formation,* Phys. Rev. Lett. **106** 161103, 2011

E. O'Connor & C. D. Ott, *Black Hole Formation in Failing Core-Collapse Supernovae,* Astrophys. J, **730** 70, 2011.

E. O'Connor & C. D. Ott, *A New Spherically Symmetric Open Source Code for Stellar Collapse to Neutron Stars and Black Holes,* Class. Quantum Grav. **27** 114103, 2010.

A. Arcones, G. Martinez-Pinedo, **E. O'Connor**, A. Schwenk, H.-Th. Janka, C. J. Horowitz & K. Langanke, *Influence of light nuclei on neutrino-driven supernova outflows*, Phys. Rev. C 78, 015806 2008.

E. O'Connor, D Gazit, C. J. Horowitz, A. Schwenk & N. Barnea, *Neutrino Breakup of A=3 Nuclei in Supernovae*, Phys. Rev. C 75, 055803 2007.

C. Vockenhuber, C.O. Ouellet, L.S. The, L. Buchmann, J. Caggiano, A.A. Chen, H. Crawford, J.M. D'Auria, B. Davids, L. Fogarty, D. Frekers, A. Hussein, D.A. Hutcheon, W. Kutschera, A.M. Laird, R. Lewis, **E. O'Connor**, D. Ottewell, M. Paul, M.M. Pavan, J. Pearson, C. Ruiz, G. Ruprecht, M. Trinczek, B. Wales, A. Wallner, *Measurement of the $Ca^{40}(\alpha,\gamma)Ti^{44}$ reaction relevant for supernova nucleosynthesis*, Phys. Rev. C **76** 035801 2007.

J. Zylberberg, D. Hutcheon, L. Buchmann, J. Caggiano, W.R. Hannes, A. Hussein, **E. O'Connor**, D. Ottewell, J. Pearson, C. Ruiz, G. Ruprecht, M. Trinczek, C. Vockenhuber, *Charge-state distributions after radiative capture of helium nuclei by a carbon beam*, NIM B **254** 17 2007.

J.M. Pittard, S.M. Dougherty, R.F. Coker, **E. O'Connor**, N.J. Bolingbroke, *Radio emission models of colliding-wind binary systems. Inclusion of IC cooling*, Astron. & Astrophys. **446** 1001 2006.

Submitted Publications

H. Andresen, **E. O'Connor**, O. Eggenberger Andersen, S. Couch, *Grey Two-moment Neutrino Transport: Comprehensive Tests and Improvements for Supernova Simulations submitted to A&A* arXiv:2402.18303

M. Segerlund, E. O'Sullivan, **E. O'Connor** *Measuring the distance and mass of galactic core-collapse supernovae using neutrinos submitted to PRL* arXiv:2101.10624

Conference Proceedings

O. Eggenberger Andersen, S. Zha, A. da Silva Schneider, A. Betranhandy, S. Couch, **E. O'Connor**, *Equation-of-State effects on Gravitational Waves in Core-Collapse Supernovae* Proceedings of the International Astronomical Union, **S363**, November 2021, E. Troja and G. Baring eds.

E. O'Connor, C.J. Horowitz, Z. Lin, S. Couch, *Core-Collapse Supernova Simulations including Neutrino Interactions*

from the Virial EOS Proceedings of the International Astronomical Union **S331**, February 2017, M. Renaud *et al.* eds.

C. D. Ott, **E. O'Connor**, S. Gossan, E. Abdikamalov, U. C. T. Gamma, S. Drasco, *Core-Collapse Supernovae, Neutrinos, and Gravitational Waves* Proceedings of The XXV International Conference on Neutrino Physics and Astrophysics, June 2012

E. O'Connor, L. Dessart, C. D. Ott, *Black-Hole Formation in Potential γ-Ray Burst Progenitors* Proceedings of the International Astronomical Union **S279** 373, March 2012

C. D. Ott, **E. O'Connor**, B. Dasgupta, *New Aspects and Boundary Conditions of Core-Collapse Supernova Theory*, Proceedings of the Hamburg Neutrinos from Supernova Explosions (Haνse 2011), arXiv:1111.6282, 2011

E. O'Connor, C. D. Ott, *Thermal Effects on Black Hole Formation in Failed Core-Collapse Supernovae*, Proceedings of Science. Proceedings of the 11th Symposium on Nuclei in the Cosmos. PoS(NIC XI)154 2011

C. D. Ott, **E. O'Connor**, F. Peng, C. Reisswig, U. Sperhake, E. Schnetter, E. Abdikamalov, P. Diener, F. Löffler, I. Hawke, C.A. Meakin, A. Burrows, *New open-source approaches to the modeling of stellar collapse and the formation of black holes*, Astrophysics and Space Science, Proceedings of the HEDLA 2010 conference doi:10.1007/s10509-010-0553-1 2010

C. D. Ott, **E. O'Connor**, *Studies of Stellar Collapse and Black Hole Formation with the Open-Source Code GR1D*, AIP Conf. Proc. Proceedings of the OMEG-2010 conference doi:10.1063/1.3485130 2010

C. D. Ott, E. Schnetter, A. Burrows, E. Livne, **E. O'Connor**, F. Löffler, *Computational models of stellar collapse and core-collapse supernovae* Journal of Physics: Conference Series. Proceedings of the SciDAC 2009 Conference doi:10.1088/1742-6596/180/1/012022 2009

E. O'Connor, S. M. Dougherty, J. M. Pittard, P. M. Williams, *The colliding winds of WR 146: seeing the works* Proceedings of "Massive Stars and High-Energy Emission in OB Associations", a workshop of the JENAM 2005, "Distant Worlds", 2005

Theses

E. O'Connor, *Topics in Core-Collapse Supernova Theory: The Formation of Black Holes and the Transport of Neutrinos*, Ph.D. dissertation, California Institute of Technology, Pasadena, California, USA, 2012

E. O'Connor, *Discontinuous Molecular Dynamics studies of Model Langmuir Monolayers*, Honours Thesis, University of Prince Edward Island, Canada, 2007

Book Chapters

E. O'Connor, *The Core-Collapse Supernova-Black Hole Connection* Handbook of Supernovae. edited by Athem W. Alsabti and Paul Murdin. Springer International Publishing (2017)

Research Grants/Awards

Black Holes from Core-Collapse Supernovae. Vetenskapsrådet Konsolideringsbidrag Grant (Swedish Research Council Consolidator Grant) at Stockholm University. Grant: 12,000,000 SEK, 2021-2026

Simulating the Explosive Death of Massive Stars. Vetenskapsrådet Etableringsbidrag (Swedish Research Council Starting Grant) at Stockholm University. Grant: 3,200,000 SEK, 2019-2022 (supersededed in 2020 by above grant)

Deciphering the Neutrino Signal from Core-Collapse Supernovae. Hubble Fellowship at North Carolina State University. Award: $\sim$240,000 USD, 2014-2017

Computer Time Awards

SNIC Large: Astrophysics at the Extremes: The Death of Massive Stars PI: Evan O'Connor. Award: ∼650000 hours/month on SNIC/NAISS resources (Tetralith) in 2024.

SNIC Large: Astrophysics at the Extremes: The Death of Massive Stars PI: Evan O'Connor. Award: ∼450000 hours/month on SNIC/NAISS resources (Tetralith) in 2022-2023.

SNIC Medium: Astrophysics at the Extremes: The Death of Massive Stars PI: Evan O'Connor. Award: ∼150000 hours/month on SNIC resources (Beskow & Tetralith) in 2019-2022.

Neutrino Transport Simulations of Core-Collapse Supernovae PI: Evan O'Connor. Award: 100,000 hours/month on SNIC resources (Beskow & Abisko) for the calendar year 2018

Extreme-scale Simulation of Supernovae and Magnetars from Realistic Progenitors PI: Sean Couch, Co-PI: Evan O'Connor + 4 others. Award: 159 million processor hours per year on MIRA and Theta at Argonne National Lab for the calendar year 2018 and 2019.

Petascale Simulation of Magnetorotational Core-Collapse Supernovae PI: Sean Couch, Co-PI: Evan O'Connor + 6 others. Award: 50 million processor hours on MIRA at Argonne National Lab for the calendar year 2015, renewed at 100 million processor hours for 2016 and 2017.

Invited Presentations

Hamburg Observatory Colloquium, *CCSNe as Laboratories for Fundamental Physics*	November 22, 2023
NP3M Seminar, *Core-Collapse Supernovae and EOS thermal effects*	Sept 7, 2023
University of Edinburgh, *The Path to Understanding Core-Collapse Supernovae*	March 23, 2023
Supernova 2022, *Gravitational Waves, Black Holes, Exotic Particles, oh my*	November 28, 2022
HEP Forum Online Seminar, *CCSNe as Laboratories for Fundamental Physics*	May 5, 2022
IOP Multimessenger conference, *Computer Simulations of Core-Collapse Supernovae*	April 7, 2022
Uppsala University Astronomy Seminar, *CCSNe as Laboratories for Fundamental Physics*	November 18, 2021
PI Strong Gravity Seminar, *CCSNe as Laboratories for Fundamental Physics*	April 22, 2021
NBI Astroparticle Seminar, *CCSNe as Laboratories for Fundamental Physics*	April 12, 2021
HUJI High Energy Seminar, *CCSNe as Laboratories for Fundamental Physics*	April 8, 2021
USC Cosmology Seminar, *Core-Collapse Supernovae*	January 15, 2021
Snowmass NF04 Workshop, *Core-Collapse Supernova Theory*	December 14, 2020
JINAHorizons, *Core-Collapse Supernovae*	December 2, 2020
LEPLAr, *Core-Collapse Supernova Neutrinos*	November 30, 2020
LMPA Saclay, *Core-Collapse Supernovae Simulations*	October 22, 2020
Bormio Meeting 2020, Italy, *Recent progress on core-collapse supernova simulations*	January 20-24, 2020
TAUP 2019, Toyama, Japan, *Supernova Neutrinos*	September 9-14, 2019
Gordon Research Nuclear Chemistry Conference, Colby College *Recent progress on core-collapse supernova simulations*	June 16-21, 2019
SNEWS2.0, Sudbury, Cananda, *Supernova Neutrinos*	June 14-15, 2019
Neutrinos at the Crossroads, ECT*, Trento, Italy *Global Comparison of Core-Collapse Supernova Simulations*	May 13-17, 2019
Technische Universität Darmstadt. *Core-Collapse Supernovae Simulations*	April 23, 2019
Albert Einstein Institute, Potsdam, Germany *Core-Collapse Supernovae Simulations*	April 2, 2019
Notre Dame, South Bend, Indiana *Core-Collapse Supernovae Simulations*	February 19, 2019
SFB 1245 Workshop, Budenheim, *New Developments in Core-Collapse Supernovae*	July 5, 2018
CCSN2018, GSSI, L'Aquila, Italy, *Neutrino Signal from Gravitational Collapse*	July 2, 2018
Shocking Supernovae, Stockholm, *Core-Collapse Supernova Simulations*	May 28, 2018
NNN, Warwick, UK, *Supernova Neutrino Production*	October 26, 2017
Astronomy Seminar, Stockholm University, *ν-Radiation Hydrodynamic Simulations of CCSNe*	September 22, 2017
νEclipse, Knoxville, *CEνNS in CCSNe*	August 20-22, 2017
MICRA2017, MSU, Michigan, *Neutrino Transport in CCSNe*	July 18, 2017

NuInt 2017, Fields Institute, Toronto, *The CCSNe Neutrino Signal* — June 30, 2017

The Physics of Extreme-Gravity Stars, Nordita, Stockholm, *Core Collapse Supernovae: formation of neutron stars and black holes* — June 12, 2017

Nuclear Physics Seminar, University of Minnesota, *The Death of Massive Stars* — April 8, 2016

SN@Dune, Virginia Tech, Blacksberg, Virginia *The Microphysics and Neutrino Signal of Core-Collapse Supernovae* — March 11, 2016

MSU Astronomy and Astrophysics Seminar, *Core-Collapse Supernovae: Neutrinos and Explosions!* — February 17, 2016

Technische Universität Darmstadt. *Neutrinos in Mergers* — December 3, 2015

Berkeley TAC Seminar, Berkeley, California *Core-Collapse Supernovae: Neutrinos and Explosions* — November 9, 2015

CNP Seminar, Virginia Tech, Blacksburg, Virginia *Core-Collapse Supernovae: Neutrinos and Explosions* — September 30, 2015

Numazu Workshop 2015, Mishima, Japan *Microphyiscal Aspects of Core-Collapse Supernovae* — September 2, 2015

FOE 2015, NSCU *Multidimensional Simulations of Core-Collapse Supernovae in FLASH* — June 3, 2015

APS April Meeting, Baltimore, MD *Microphyiscal Aspects of Supernovae and Compact Object Merger Modelling* — April 11, 2015

DOE Topical Collaboration, NSCU *The Collapse Phase Neutrino and Nuclear Physics* — May 1, 2014

ECT* Simulating the Supernova Neutrinosphere with Heavy Ion Collisions *Introduction to Supernovae and Simulations of Supernovae* — April 7, 2014

TNT Colloquium, NCSU *The Death Throes of Massive Stars: Black Holes, Explosions, and Neutrinos* — January 14, 2014

University of Calgary Physics Colloquium. *The Death Throes of Massive Stars: Explosions, Neutrinos, and Black Holes* — November 22, 2013

JINA Seminar. *Core-Collapse Supernovae: Explosions and Signals* — November 4, 2013

ECT* Neutron-rich Matter and Neutron Stars. *Core-Collapse Supernovae: Status and Predictions* — October 2, 2013

UPEI Physics Department. *Core-Collapse Supernovae: Essentials to Explosions* — July 3, 2013

2013 CAP Congress. *The Death Throes of Massive Stars: Supernovae, Black Holes, and Neutrinos* — May 27-31, 2013

Perimeter Institute. *The Death Throes of Massive Stars: Supernovae, Black Holes, and Neutrinos* — April 9, 2013

University of Guelph. *Black Holes and 3D General Relativistic Simulations of Core-Collapse Supernovae* — November 12, 2012

Nuclear Astrophysics Town Hall. Presentation to the working group 'Core collapse Supernovae, Neutron Star Mergers and GRBs' on *Core-Collapse Supernova Mechanism Modelling* — October 9, 2012

Technische Universität Darmstadt. *Core-Collapse Supernovae Neutrinos* — September 17, 2012

CITA gravity meeting (CITA). *Core-Collapse Supernovae: Black Holes and Neutrinos* — December 6, 2011

CCAPP Seminar (OSU). *Black Hole Formation in Failing Core-Collapse Supernovae* — November 29, 2011

ITC Seminar (Harvard-Smithsonian CfA). *Microphysical Aspects of Core-Collapse Supernovae* — November 15, 2011

Astrophysical Transients workshop, (INT, UofW). *Microphysical Aspects of Core-Collapse Supernovae* — August 4, 2011

MICRA2011 workshop, Perimeter Institute *The Role of Collective Neutrino Flavor Oscillations in Core-Collapse Supernova Shock Revival* — June 21, 2011

LA-Astro Seminar (Los Alamos National Laboratory). *Black Hole Formation in Failing Core-Collapse Supernovae* — June 8, 2011

WNPPC08 (Banff, Alberta). *Light Elements in Supernovae* — February 15-17, 2008

Summer Schools

Nordic Winter School on Multimessenger Astrophysics 4 lectures on Neutrinos and Nuclear Equation of State	January 28-February 2, 2024
Supernovae and Neutrinos 1 lecture on Supernovae for Neutrino University	July 21, 2022
Physics of Macronovae, Stockholm, Sweden 2 lectures on Eulerian Hydrodynamics	June 12-20, 2018
Kavli Summer Program in Astrophysics: Astrophysics with Gravitational Wave Detections Neils Bohr Institute, Copenhagen, Denmark. 1 lectures on Core-Collapse Supernovae: Neutron Stars, Black Holes, and Gravitational Waves.	July 10-August 18, 2017
2015 International School on Numerical Relativity and Gravitational Waves, Daejeon, South Korea. 3 lectures on Nuclear Astrophysics	July 26-31, 2015
Caltech Gravitational Wave Summer School, Pasadena, USA. 1 lecture on Physics of Core-Collapse Supernovae	July 6-10, 2015