

Dr. Christian David Ott

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Appointments: **Professor of Theoretical Astrophysics**
California Institute of Technology, Pasadena, CA 91125, USA
02/2014 – 12/2017.

Assistant Professor of Theoretical Astrophysics
California Institute of Technology, Pasadena, CA 91125, USA
09/2009 – 02/2014.

Sherman Fairchild Prize Postdoctoral Fellow
California Institute of Technology, Pasadena, CA 91125, USA
07/2008 – 09/2009.

Postdoctoral Research Associate
Steward Observatory, The University of Arizona, Tucson, AZ 85721, USA
Mentor: Adam Burrows
07/2006 – 07/2008.

Education 03/2007: Dr. rer. nat. in Theoretical Astrophysics, Summa Cum Laude.
Universität Potsdam and Max-Planck-Institut für Gravitationsphysik,
Albert-Einstein-Institut (AEI)
Thesis Advisors: Prof. Dr. B. Schutz (Director emeritus, AEI)
and Prof. Dr. H. E. Seidel (now Illinois)

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08/2003: Diploma in Physics (1.0, “with distinction”)
Universität Heidelberg, Institut für Theoretische Astrophysik
Thesis Advisor: Prof. Dr. W. Duschl (now Univ. Kiel)

Awards and Scholarships 2013: **Squire Lecturer**, Grinnell College.
2012: **Alfred P. Sloan Research Fellowship** (2012-2014).
2012: **NSF CAREER Grant** (Gravitational Physics, 2012-2017).
2008: **Otto Hahn Medal** 2007 of the Max Planck Society.
2007: Young Scientist Prize of the City of Potsdam.
2001: Elite scholarship of the State of Baden-Württemberg for studies abroad
(2001-2002).
1999: German Federal Elite Scholarship through the Villigst center
of the German Lutheran Church (1999-2003).

Other Appointments and Positions

- 09/2017 - 03/2018 **Collaborating Researcher**, Yukawa Institute for Theoretical Physics (YITP), Kyoto University.
03/2017 - 06/2017 **Visiting Professor**, Yukawa Institute for Theoretical Physics (YITP), Kyoto University.
09/2012 - 12/2017 **Affiliate Member**, IPMU, Tokyo University, Kashiwa, Japan.
03/2009 - 01/2014 **Adjunct Assistant Professor**, Center for Computation and Technology, Louisiana State University, Baton Rouge, LA, USA.
08/2009 - 12/2009 **Visiting Assistant Professor of Theoretical Astrophysics**, Niels Bohr Institute, Blegdamsvej 17, 2100 Copenhagen, Denmark.

Scientific Interests and Expertise

- Multi-scale, multi-physics simulations of 3D astrophysical phenomena, including magnetohydrodynamics/fluid dynamics, gravity, radiation transport, and complex local microphysics.
- Core-collapse supernova theory, including neutrino radiation transport and interactions, equation of state (EOS) of nuclear matter, thermonuclear reactions / nucleosynthesis.
- Gravitational wave and multi-messenger astronomy and data analysis; Bayesian model selection and parameter estimation for sources of gravitational waves.
- Theory of gamma-ray burst central engines, including coalescence and merger of compact binaries and black-hole formation in the context of the collapsar model for long gamma-ray bursts.
- Numerical general relativity in non-vacuum spacetimes with and without black holes. Full Cauchy curvature evolution and conformally-flat treatments.
- Computational science and high-performance scientific computing. Application and scaling of simulation codes to massively-parallel supercomputers at petascale levels. Parallelization paradigms, code optimization, workflows, and data management.

Key Scientific Achievements

- First 3D general-relativistic multi-group neutrino radiation-hydrodynamics simulations of core-collapse supernovae. (1) Demonstration that the neutrino-driven explosion mechanism is successful in 3D (Roberts, Ott, *et al.* 2016). (2) First study on the progenitor star dependence of 3D core-collapse supernovae (Ott *et al.* 2017).
- Demonstrated that the magnetorotational instability (MRI) obtains in rapidly spinning magnetized protoneutron stars and showed that the resulting magnetoturbulence exhibits an inverse cascade (large-scale dynamo) that builds up a globally ordered magnetic field. This creates the magnetic-field configuration necessary to drive bipolar outflows in the context of hypernovae (Mösta, Ott, *et al.* 2015, Nature).
- Identified the crucial role of turbulence in reviving the stalled core-collapse supernova shock (Couch & Ott 2015).
- Demonstrated that precollapse asphericities in silicon/oxygen layers of core-collapse supernova progenitors can influence the explosion mechanism (Couch & Ott 2013).
- First long-term full GR 3D simulations of core collapse and supernova evolution (Ott *et al.* 2013).
- Demonstrated that the neutrino signal from a galactic core collapse event can be used to constrain progenitor structure and nuclear EOS (O'Connor & Ott 2013).
- Identification of correlated gravitational wave and neutrino signals in rapidly rotating stellar collapse (Ott *et al.* 2012).

- First long-term 3D general-relativistic simulations of the formation of a stellar-mass black hole at the core of a collapsing massive star (Ott *et al.* 2011).
- Identification of the prominent gravitational wave emission mechanisms in core-collapse supernovae and their mapping to individual explosion scenarios. Demonstration of a robust method to determine the explosion mechanism based on gravitational wave observation (Ott 2009ab, Logue *et al.* 2012).
- First extensive parameter study in spherical symmetry (+ rotation) elucidating the systematics of stellar-mass black hole formation with progenitor structure, rotation, and nuclear equation of state (O'Connor & Ott 2011).
- First long-term multi-dimensional momentum-space angle-dependent multi-group neutrino radiation-hydrodynamic simulations of the postbounce phase of core-collapse supernovae (Ott *et al.* 2008).
- First multi-dimensional general-relativistic simulations of stellar collapse employing realistic microphysics (Ott *et al.* 2007).
- First self-consistent mapping between pre-core-collapse stellar rotational configuration and protoneutron star spin and angular momentum distribution (Ott *et al.* 2006).
- Proposition of a novel mechanism for core-collapse supernova explosions that is based on the excitation of protoneutron star pulsational modes and their damping via acoustic waves. This acoustic supernova mechanism bears a strong signature in gravitational waves. On the cover of PRL 96, 20, 2006 and discussed by T. Creighton in Nature Physics 2, 2006.
- Identification of a postbounce rotational nonaxisymmetric instability in protoneutron stars at ratios of rotational kinetic to gravitational potential energy much lower than previously believed possible (Ott *et al.* 2005).

Collaborations

- **Einstein Toolkit** – a community toolkit for computational relativistic astrophysics. A NSF-funded collaborative project between Illinois, LSU, GATech, RIT, and Caltech.
- **National Research Center “Kurchatov Institute”, Institute for Theoretical and Experimental Physics, Moscow, Russia, S. Blinnikov, A. Yudin, P. Baklanov:** Supernova lightcurves and spectra, microphysics, and protoneutron star evolution.
- **Yukawa Institute for Theoretical Physics, M. Shibata, M. Sasaki:** Numerical relativity and gravitational wave physics.
- **Michigan State University, S. Couch and L. F. Roberts:** Core-collapse supernova theory and simulations, nuclear astrophysics.
- **University of Arizona, W. D. Arnett:** Massive star evolution.
- **Perimeter Institute, E. Schnetter:** Numerical relativity and computational science.
- **Louisiana State University, Center for Computation and Technology, P. Diener, F. Löffler:** Petascale scientific computing, computational science, numerical relativity, nonaxisymmetric rotational dynamics of protoneutron stars.

Research Funding and Computer Time Allocations

- PI, NSF CAREER grant, Gravitational Physics Program, 5+1 years, \$500k total, 2012-2018.
- PI, 12.6 million service units NSF XSEDE computer time grant, XRAC, 2016-2017
- PI, Sherman Fairchild Foundation grant to Caltech for the purchase and operation of a high-performance computer cluster, \$850k + \$425k Caltech matching funds, 2015-2020.
- PI, Sherman Fairchild Foundation grant to Caltech and Cornell in support of the Simulating eXtreme Space-times program, 4 years, \$3.9M, 2013-2017.
- PI, 21 million service units NSF XSEDE computer time grant, XRAC, 2015-2016
- PI, NSF PRAC Blue Waters Computer Time award, 3 years, 22.63 million node hours 2014-2017.
- PI, 8.9 million service units NSF XSEDE computer time grant, XRAC, 2014-2015
- PI, NSF Astronomy & Astrophysics Theoretical and Computational Astrophysics Network (TCAN), 3+1 years, Caltech, Cornell, Univ. of Washington, Syracuse, \$1.56M, 2013-2017.
- PI, 25 million service units NSF XSEDE computer time grant, XRAC, 2013-2014
- PI, NSF Astronomy & Astrophysics grant, 3 years, \$383k total, 2012-2015.
- PI, NSF collaborative Astronomy & Astrophysics grant with UC Berkeley (Quataert) and UC Santa Barbara (Bildsten), 3 years, \$248k total, 2012-2015.
- PI, NSF collaborative Physics at the Information Frontier grant, 3 years, \$83k total, 2012-2015.
- PI, NSF Major Research Infrastructure grant, \$1.05 M, 2010-2013. This grant, in combination with matching funds from the Sherman Fairchild Foundation, has allowed us to purchase a ~2,000-core supercomputer housed at Caltech's CACR center.
- PI, NSF Astronomy & Astrophysics grant, 3 years, \$220k total, 2009-2012.
- PI, NASA Astrophysics Theory grant, 3 years, \$475k total, 2011-2014.
- PI, 9.5 million service units NSF XSEDE computer time grant, XRAC, 2012-2013
- Co-PI, NSF Gravitational Physics research grant, 3 years, \$~900k total, 2011-2014
- Co-PI, NSF PetaApps research grant (with the Center of Computation and Technology [CCT], LSU) for scaling general-relativistic radiation-MHD codes to petascale computers, 5 years, ~\$1.4M total, 2009-2014.
- Co-PI, NSF Physics at the Information Frontier grant, 3 years, \$500k total, 2009-2012

Graduate Students

Students graduated:

- **Sherwood Richers** (physics), 2012-2017, PhD thesis *r-Process nucleosynthesis in neutron star mergers with the new nuclear reaction network SkyNet*. Now postdoctoral scholar at North Carolina State University.
- **Jonas Lippuner** (physics), 2012-2017, PhD thesis *Neutrino Radiation Transport And Other Topics in High Energy Density Astrophysics*. Now a postdoc at Los Alamos National Laboratory.
- **Jonathan Blackman** (physics), 2012-2017, PhD thesis *Surrogate Models of Gravitational Waves from Numerical Relativity Simulations of Binary Black Hole Mergers*. Now a short-term postdoc, then moving on to a position in finance.
- **Jeffrey Kaplan** (physics) 2010-2013, PhD thesis *Where Tori Fear to Tread: Hypermassive Neutron Star Remnants and Absolute Event Horizons or Topics in Computational General Relativity*, now in the private sector.
- **Evan O'Connor** (physics), 2008-2012, PhD thesis *Topics in Core-Collapse Supernova Theory: The Formation of Black Holes and the Transport of Neutrinos*. CITA Fellow 2012-2014, Hubble Fellow 2014-2017. Now **junior faculty** at Stockholm University, Sweden.

Current Graduate Students:

- **Joseph Fedrow** (physics, YITP), 2016-2018. Numerical relativity.

Postdocs

Current Postdocs:

- **Davide Gerosa**, 2016-2017, Burke Fellow, Theoretical Astrophysics and Relativity.
- **Hiroki Nagakura**, 2016-2017, JSPS Fellow, Theoretical Astrophysics.
- **André da Silva Schneider**, 2014-2017. Nuclear Physics and Astrophysics.

Former Postdocs:

- **Jim Fuller**, 2013-2015, DuBridge Fellow, Theoretical Astrophysics. Now **junior faculty** at Caltech.
- **Luke Roberts**, 2012-2016. Einstein Fellow since Fall 2013. Nuclear astrophysics and core-collapse supernova theory. Now **junior faculty** at Michigan State.
- **Viktoriya Morozova**, 2014-2016. Radiation-hydrodynamics of supernova explosions. Now postdoc at Princeton.
- **David Radice**, 2013-2016. Sherman Fairchild Postdoctoral Prize Fellow. Numerical relativity. Now a postdoctoral fellow at Princeton and the Institute for Advanced Study.
- **Drew Clausen**, 2013-2017, DuBridge Fellow, Theoretical Astrophysics. Now working as a data scientist at Kaiser Permanente.
- **Christine Corbett Moran**, 2015. Supermassive star collapse. Now NSF Astronomy & Astrophysics Postdoctoral Fellow at Caltech.
- **Philipp Mösta**, 2011-2015. GRMHD and core-collapse supernova theory. Now **Einstein Fellow** at the University of California, Berkeley.

- **Sebastiano Bernuzzi**, 2014-2015. Numerical Relativity. Now **junior faculty** at the University of Parma, Italy.
- **Sean M. Couch**, 2014-2015. Supernova Theory and Simulation. Now **junior faculty** Michigan State University.
- **Christian Reisswig**, 2010-2015. **Einstein Fellow**. Numerical relativity. Now works in the private sector.
- **Nick Taylor**, 2010-2014. Numerical relativity. Now works in the private sector.
- **Roland Haas**, 2011-2014. Numerical relativity, Einstein Toolkit. Now a research scientist and staff member at the National Center for Supercomputing Applications, University of Illinois.
- **Anthony Piro**, 2010-2014. Theoretical astrophysics. Compact objects, supernovae, and other explosive phenomena. Now a **permanent staff member** at Carnegie Observatories.
- **Ernazar Abdikamalov**, 2011-2014. Core-collapse supernova theory. Now **junior faculty** at Nazarbayev University, Kasachstan.
- **Anil Zenginoglu**, 2010-2013. Numerical relativity. Now staff at the University of Maryland.
- **Fang Peng**, 2010-2011. Now works in the private sector.

Teaching Experience

Teaching of Courses at Caltech:

- Jan.-Mar. 2015 Caltech Physics course 136B: Applications of Classical Physics.
- Jan.-Mar. 2015 Caltech Astrophysics course 101: Physics of Stars.
- Apr.-Jun. 2014 Caltech Astrophysics course 102: Interstellar Medium.
- Jan.-Mar. 2014 Caltech Astrophysics course 190: Computational Astrophysics.
- Oct.-Dec. 2013 Caltech Astrophysics course 121: Radiative Processes (with Gregg Hallinan).
- Apr.-Jun. 2013 Caltech Astrophysics course 102: Interstellar Medium.
- Apr.-Jun. 2013 Caltech Astrophysics Independent Study: Computational Astrophysics. Mentored students Io Kleiser, Michael Eastwood, Antonija Oklopčić, and Sebastian Pineda.
- Jan.-Mar. 2013 Caltech Astrophysics Independent Study: Computational Astrophysics. Mentored senior undergrad Stacy Kim.
- Oct.-Dec. 2012 Caltech Astrophysics course 121: Radiative Processes (with Gregg Hallinan).
- Apr.-Jun. 2012 Caltech Astrophysics course 125: High-Energy Astrophysics (with Alan Weinstein).
- Jan.-Mar. 2012 Caltech Astrophysics course 190: Computational Astrophysics.
- Sep.-Dec. 2011 Caltech Freshman Seminar 001: Cosmic Explosions.
- Apr.-Jun. 2011 Caltech Astrophysics course 125: High-Energy Astrophysics (with Alan Weinstein).
- Jan.-Mar. 2011 Caltech Astrophysics course 190: Computational Astrophysics (with Andrew Benson).
- Apr.-Jun. 2010 Caltech Physics course Ph1c: Electromagnetism; Section 6 (recitation).
- Jan.-Mar. 2010 Caltech Astrophysics course 215: Seminar in Theoretical Astrophysics – Interacting Binaries.

Other Teaching:

- May/June 2017 Five lectures on Scientific Computing with Python. Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan.
- Sep. 2016 Lectures on Numerical Relativity and Core-Collapse Supernova Simulations at the School for Young Astronomers, Tarusa, Russia.
- Mar. 2015 Three 1.5-hour lectures on Numerical Relativity and Computational Relativistic Astrophysics at the International School on Gravitational Wave Physics at the Yukawa Institute, Kyoto University, Japan.
- Jul. 2014 Two 1-hour lectures on Core Collapse and Neutron Star Mergers at the 2014 UC HIPACC Astrocomputing School at UCSD, University of California San Diego.
- Sep. 2013 Two 1.25-hour Lectures on Supernovae and Neutron Stars at the TAUP Summer School, Asilomar, CA.
- Jul. 2013 Lecture on Stellar Collapse and Core-Collapse Supernovae at CGWAS 2013, Caltech, Pasadena, CA.
- Jul. 2011 UC HIPACC Astrocomputing School at UC Berkeley / LBNL: Lectures on stellar collapse and general-relativistic hydrodynamics.
- Jun. 2011 Lectures on high-performance computing and thread-based parallelism at the Iowa High-Performance Computing School, Iowa City, IA.
- Sep. 2009 Lecture on the Physics of Stellar Collapse and Core-Collapse Supernovae in course on Explosive Stages in Stellar Evolution, Århus University, Denmark.
- Aug. 2009 Lecturer at CompSchool 2009, Niels Bohr International Academy, Copenhagen.

- Nov. 2008 Lecturer at a GR hydrodynamics school/workshop hosted by the Max-Planck-Institut für Astrophysik in Garching. Lecture on including microphysical EOSs and deleptonization in GR simulations of stellar collapse.
- Jan. 2008 Invited lecturer at Asia-Pacific Center for Theoretical Astrophysics Winter School on Black Hole Astrophysics, Daejeon and Pohang, Korea. Lectures on astrophysical aspects of black hole formation.
- Apr.-Jul. 2004 Teaching assistant graduate-level Quantum Mechanics, Universität Potsdam. Repetition and problem class taught. 20 entry-level graduate students.

Service and Synergistic Activities

Current:

- **Einstein Toolkit.** The Einstein Toolkit is an open-source collection of codes for numerical relativity and computation relativistic astrophysics. The Einstein Toolkit is based on and an offspring of the Cactus Computational Toolkit (<http://cactuscode.org>) that was originally initiated by Ed Seidel and Gabrielle Allen in the late 1990s. I am a member of the Einstein Toolkit maintainer group. I have been involved in the Einstein Toolkit since 2008 and have overseen the writing of the most recent Einstein Toolkit paper, lead-authored by my postdoc Philipp Mösta (see publication list, Mösta et al. 2014). The Einstein Toolkit is used by $\gtrsim 50$ different research groups worldwide, including the majority of the numerical relativity groups in the US. More information about the Einstein Toolkit can be found at <https://einsteintoolkit.org>.
- **stellarcollapse.org.** <http://stellarcollapse.org> is a portal for the stellar collapse and core-collapse supernova community that I have initiated and am maintaining. Jim Lattimer is using stellarcollapse.org to provide his neutron star mass table to the community. My group is providing simulation results, supplemental data to publications, and a variety of open-source codes and microphysics tables and routines for the community. These include our 1D GR stellar collapse code GR1D, our SuperNova Explosion Code SNEC, the neutrino interaction routines NuLib (by my former student Evan O'Connor), and an assortment of nuclear equation of state tables and routines now used widely in the community.
- Referee: Nature Physics, The Astrophysical Journal Letters, The Astrophysical Journal, Living Reviews in Relativity, New Journal of Physics, Classical and Quantum Gravity, Monthly Notices of the Royal Astronomical Society, Physical Review Letters, Physical Review D, Astronomy & Astrophysics, General Relativity and Gravitation, Reviews in Modern Physics.

Past:

- Associate Editor, [Computational Astrophysics and Cosmology \(CompAC\)](#), Springer Verlag, 2014 – 2017.
- Member, NSF Extreme Science and Engineering Discovery Environment (XSEDE) Computer Time Allocation Panel. This panel meets four times a year to decide about the allocation of national supercomputer resources. 2010 – 2017.
- Member, LIGO Scientific Collaboration, 2009-2015.
- Co-liason, LIGO Scientific Collaboration and Virgo Collaboration Supernova working group, 2013-2015.
- Initiator and lead organizer, Microphysics in Computational Relativistic Astrophysics (**MICRA**) Workshop 2015 (Nordita, Stockholm), 2013 (ECT*, Trento), 2011 (Perimeter Institute, Waterloo), 2009 (Niels Bohr Institute, Copenhagen).
- Organizer and principal of the **Caltech Gravitational-Wave Astrophysics School 2015 and 2013**. The goal of CGWAS is to train the first generation of gravitational-wave astrophysicists. CGWAS is part of the educational/outreach component of my NSF CAREER project and will be held in 2013, 2015, and 2017. CGWAS 2015 attracted a total of ~ 60 graduate students and senior undergraduates from 11 nations. The list of lecturers included Duncan Brown (Syracuse), Alessandra Corsi (Texas Tech), Jessica McIver (Caltech),

Brian Metzger (Columbia), Chiara Mingarelli (Caltech), Samaya Nissanke (Radboud), Evan O'Connor (NC State), Erin O'Sullivan (Duke), Ben Owen (Texas Tech), Jocelyn Read (Fullerton), Patricia Schmidt (Caltech), Michele Vallisneri (JPL/Caltech), and Alan Weinstein (LIGO/Caltech). Details on the program are available at <http://www.cgwas.org>.

CGWAS 2013 attracted a total of ~50 graduate students and senior undergraduates from 12 nations. The list of lecturers included Marjiam Modjaz (NYU), Dan Kasen (UCB/LBNL), Kate Scholberg (Duke), Alan Weinstein (LIGO/Caltech), Samaya Nissanke (Caltech), Eric Thrane (LIGO/Caltech), Erik Schnetter (Perimeter), Richard O'Shaughnessy (U Wisconsin Milwaukee), and Christian Ott.

- Member-at-Large, executive committee American Physical Society Topical Group on Gravitation (GGR), 2012-2015.
- Chair, APS GGR committee for the organization of a Gravitational Physics Principle Investigator Day at NSF, 2014.
- Member, Local Organizing Committee, 13th International Conference on Topics in Astroparticle and Underground Physics (TAUP 2013), Asilomar, CA, USA, September 8-13, 2013.
- Member, Scientific Organizing Committee, 20th International Conference on General Relativity and Gravitation (GR20), July 7-13, 2013, Warsaw, Poland.
- Member, Hubble Fellowship Selection Committee 2013.
- Chair, APS GGR Early Career Lecturer Selection Committee, 2012-2013.
- Working group convener, Nuclear Astrophysics Town Meeting 2012, Detroit, October 9-10, 2012.
- Member, NSF Office of Cyberinfrastructure task force on grand challenges in computational science, 2009 - 2010.
- Member, Scientific Organizing Committee, Gravitational Wave Bursts Conference in Chichen Itza, Yucatán, Mexico, December 2009.
- Lead organizer, Microphysics in Computational Relativistic Astrophysics (MICRA) workshops 2011 (Perimeter Institute) and 2009 (Niels Bohr Institute).
- Lead organizer, Summer School on Stellar Collapse, Compact Objects, Supernovae, and Gamma-Ray Bursts at the Niels Bohr International Academy, August 18-21, 2009.
- Member, Scientific Organization Committee, Numerical Relativity and Data Analysis Workshop 2009, Albert Einstein Institute, Potsdam, Germany, July 6-9, 2009.

Publication Metrics and Links

All citation information is of December 25, 2017. Links lead to NASA/ADS private libraries:

- All publications: <https://goo.gl/XtRAHy>. 10515 citations, H-index 54.
- Short and long author list publications to which CDO has made major contributions: <https://goo.gl/KqUioA>. 5841 citations, H-index 46.
- Refereed, short author list papers: <https://goo.gl/j4sDRG> 5367 citations, H-index 44.

Short Author List Publications in refereed Journals

- [97] 2017 C. D. Ott, L. F. Roberts, A. da Silva Schneider, J. M. Fedrow, R. Haas, E. Schnetter, *The Progenitor Dependence of Three-Dimensional Core-Collapse Supernovae*, submitted to *Astrophys. J.*, arXiv:1712.01304. [arXiv](#).
- [96] 2017 F. H. Nouri, M. Duez, F. Foucart, M. B. Deaton, R. Haas, M. Haddadi, L. Kidder, C. D. Ott, H. Pfeiffer, M. Scheel, B. Szilagyi, *Evolution of the Magnetized, Neutrino-Cooled Accretion Disk in the Aftermath of a Black Hole Neutron Star Binary Merger*, submitted to *Phys. Rev. D.*, arXiv:1710.07423. [arXiv](#).
- [95] 2017 D. Radice, E. Abdikamalov, C. D. Ott, P. Mösta, S. M. Couch, L. F. Roberts, *Turbulence in Core-Collapse Supernovae*, invited review to appear in a special issue of *Journal of Physics G*, arXiv:1710.01282. [arXiv](#).
- [94] 2017 M. Giesler, D. Clausen, C. D. Ott, *Low-Mass X-Ray Binaries from Black-Hole retaining Globular Clusters*, submitted to *MNRAS*, arXiv:1708.05915. [arXiv](#).
- [93] 2017 U. Sperhake, C. Moore, R. Rosca, M. Agathos, D. Gerosa, C. D. Ott, *Long-lived inverse chirp signals from core collapse in massive scalar-tensor gravity*, *Phys. Rev. Lett.* 119, 201103. [ads](#).
- [92] 2017 A. da Silva Schneider, L. Roberts, C. D. Ott, *A New Open-Source Nuclear Equation of State Framework based on the Liquid-Drop Model with Skyrme Interaction*, accepted for publication in *Phys. Rev. C*, arXiv:1707.01527. [arXiv](#).
- [91] 2017 S. Richers, H. Nagakura, C. D. Ott, J. Dolence, K. Sumiyoshi, S. Yamada, *A Detailed Comparison of Multi-Dimensional Boltzmann Neutrino Transport Methods in Core-Collapse Supernovae*, *Astrophys. J. Suppl. Ser.* 847, 133. [ads](#).
- [90] 2017 J. Blackman, S. E. Field, M. A. Scheel, C. R. Galley, C. D. Ott, M. Boyle, L. E. Kidder, H. P. Pfeiffer, B. Szilagyi, *A Numerical Relativity Waveform Surrogate Model for Generically Precessing Binary Black Hole Mergers*, *Phys. Rev. D* 96, 024058. [ads](#).
- [89] 2017 J. M. Fedrow, C. D. Ott, U. Sperhake, J. Blackman, R. Haas, C. Reisswig, A. De Felice, *Gravitational Waves from Binary Black Hole Mergers Inside of Stars*, *Phys. Rev. Lett.* 119, 171103. [ads](#).
- [88] 2017 L. E. Kidder, S. E. Field, F. Foucart, E. Schnetter, S. Teukolsky, A. Bohn, N. Deppe, P. Diener, F. Hebert, J. Lippuner, J. Miller, C. D. Ott, M. A. Scheel, T. Vincent, *SpECTRE: A task-based discontinuous Galerkin code for relativistic astrophysics*, *J. Comp. Phys.* 335, 84. [ads](#).
- [87] 2017 M. Renzo, C. D. Ott, S. N. Shore, S. E. de Mink, *A Systematic Survey of the Effects of Wind Mass Loss Algorithms on the Evolution of Single Massive Stars*, *Astron. & Astroph.* 630, A118. [ads](#).
- [86] 2017 J. Lippuner, R. Fernandez, L. F. Roberts, F. Foucart, D. Kasen, B. Metzger, C. D. Ott, *Signatures of hypermassive neutron star lifetimes on r -process nucleosynthesis in the disk ejecta from neutron star mergers*, *Mon. Not. Roy. Ast. Soc.*, 472, 904. [ads](#).
- [85] 2017 S. Richers, C. D. Ott, E. Abdikamalov, E. O'Connor, C. Sullivan, *Equation of state effects on gravitational waves from rotating core collapse*, *Phys. Rev. D* 95, 063019. [ads](#).

- [84] 2017 D. Radice, S. Bernuzzi, W. Del Pozzo, L. F. Roberts, **C. D. Ott**, *Probing Extreme-Density Matter with Gravitational Wave Observations of Binary Neutron Star Merger Remnants*, *Astrophys. J. Letters*, 842, L10. [ads](#).
- [83] 2017 L. F. Roberts, J. Lippuner, M. Duez, J. Faber, F. Foucart, J. Lombardi, S. Ning, **C. D. Ott**, *The Influence of Neutrinos on r -Process Nucleosynthesis in the Ejecta of Black Hole-Neutron Star Mergers*, *Mon. Not. R. Ast. Soc.* 464, 3907. [ads](#).
- [82] 2016 **C. D. Ott**, *Massive Computation for Understanding Core-Collapse Supernova Explosions*, *Computing in Science & Engineering*, 18, 78–92. [ads](#).
- [81] 2016 L. F. Roberts, **C. D. Ott**, R. Haas, E. P. O’Connor, P. Diener, E. Schnetter, *General Relativistic Three-Dimensional Multi-Group Neutrino Radiation-Hydrodynamics Simulations of Core-Collapse Supernovae*, *Astrophys. J.* 831, 98. [ads](#).
- [80] 2016 R. Haas, **C. D. Ott**, B. Szilagyi, J. D. Kaplan, J. Lippuner, M. A. Scheel, K. Barkett, C. Muhlberger, T. Dietrich, M. Duez, F. Foucart, H. Pfeiffer, L. Kidder, S. Teukolsky, *Simulations of inspiraling and merging double neutron stars using the Spectral Einstein Code*, *Phys. Rev. D* 93, 124062. [ads](#).
- [79] 2016 V. Morozova, A. L. Piro, M. Renzo, **C. D. Ott**, *Numerical Modeling of the Early Light Curves of Type IIP Supernovae*, *Astrophys. J.* 829, 109. [ads](#).
- [78] 2016 D. Radice, S. Bernuzzi, **C. D. Ott**, *The One-Armed Spiral Instability in Neutron Star Mergers and its Detectability in Gravitational Waves*, *Phys. Rev. D* 94, 064011. [ads](#).
- [77] 2016 D. Radice, **C. D. Ott**, E. Abdikamalov, S. M. Couch, R. Haas, and E. Schnetter, *Neutrino-Driven Convection in Core-Collapse Supernovae: High-Resolution Simulations*, *Astrophys. J.* 820, 76. [ads](#).
- [76] 2016 K. Barkett, M. Scheel, R. Haas, **C. D. Ott**, S. Bernuzzi, D. Brown, B. Szilagyi, J. D. Kaplan, J. Lippuner, C. D. Muhlberger, F. Foucart, and M. Duez, *Gravitational Waveforms for Neutron Star Binaries from Binary Black Hole Simulations*, *Phys. Rev. D* 93, 044064. [ads](#).
- [75] 2016 F. Foucart, R. Haas, M. Duez, E. O’Connor, **C. D. Ott**, L. F. Roberts, L. Kidder, J. Lippuner, H. Pfeiffer, and M. Scheel, *Low Mass Binary Neutron Star Mergers: Gravitational Waves and Neutrino Emission*, *Phys. Rev. D.* 93, 044019. [ads](#).
- [74] 2016 S. E. Gossan, P. Sutton, A. Stuver, M. Zanolin, K. Gill, and **C. D. Ott**, *Observing Gravitational Waves from Core-Collapse Supernovae in the Advanced Detector Era*, *Phys. Rev. D* 93, 042002. [ads](#).
- [73] 2016 D. Gerosa, U. Sperhake, **C. D. Ott**, *Numerical Simulations of Stellar Collapse in Scalar-Tensor Theories of Gravity*, *Class. Quantum Grav.* 33, 135002. [ads](#).
- [72] 2016 D. Radice, F. Galeazzi, J. Lippuner, L. F. Roberts, **C. D. Ott**, L. Rezzolla, *Dynamical Mass Ejection from Binary Neutron Star Mergers*, *Mon. Not. R. Ast. Soc.* 460, 3255. [ads](#).
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Long Author List Publications in refereed Journals

(only those are listed in which I have played a significant role)

- [la8] 2016 B. P. Abbott *et al.* (LIGO Scientific Collaboration and Virgo Collaboration), *First targeted search for gravitational-wave bursts from core-collapse supernovae in data of first-generation laser interferometer detectors*, *Phys. Rev. D.* 94, 102001. [ads](#). CDO's contribution: Initiation and leadership of the search, astrophysical source selection, and writing large sections of the paper.
- [la7] 2016 B. P. Abbott *et al.* (LIGO Scientific Collaboration and Virgo Collaboration), *Observation of Gravitational Waves from a Binary Black Hole Merger*, *Phys. Rev. Lett.* 116, 061102. [ads](#). CDO's contribution: member of the blind-injection study team, selection of injection waveforms, and development of the necessary software infrastructure.
- [la6] 2015 J. Aasi *et al.* (LIGO Scientific Collaboration and Virgo Collaboration), *An All-Sky Search for Long-Duration Gravitational Wave Transients with LIGO*, *Phys. Rev. D.* 93, 042005. [ads](#). CDO's contribution: co-wrote section on astrophysical sources of long GW transients.
- [la5] 2013 J. Aasi *et al.* (LIGO Scientific Collaboration and Virgo Collaboration), *A search for long-lived gravitational-wave transients coincident with long gamma-ray bursts*, accepted for publication in *Phys. Rev. D.*, [ads](#). CDO's contribution: Developed the ad-hoc signal model that was used to generate upper limits (<https://dcc.ligo.org/LIGO-T1100093/public>). Provided extensive comments on the manuscript and participated in the review of the waveform model.
- [la4] 2013 S. Adriaán-Martínez *et al.* (Antares Collaboration, LIGO Scientific Collaboration, and Virgo Collaboration), *A First Search for coincident Gravitational Waves and High Energy Neutrinos using LIGO, Virgo and ANTARES data from 2007*, *JCAP, JCAP06(2013)008*. [ads](#). CDO's contribution: Authored introduction, section on source physics, and co-authored interpretation of results.
- [la3] 2012 J. Abadie *et al.* (LIGO Scientific Collaboration and Virgo Collaboration), *All-sky search for gravitational-wave bursts in the second joint LIGO-Virgo run*, *Phys. Rev. D.* 85, 122007. [ads](#). CDO's contribution: Stellar collapse / core-collapse supernova statements and interpretations.

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Other Publications, Publications in Conference Proceedings and Books

- [nr25] 2013 **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 Neutrino 2012 conference, Kyoto, Japan, *Nuc. Phys. B Proc. Suppl.* 235, 381. [ads](#).
- [nr24] 2012 E. O'Connor, L. Dessart, and **C. D. Ott**, *Black-Hole Formation in Potential Gamma-Ray Burst Progenitors*, *Death of Massive Stars: Supernovae and Gamma-Ray Bursts*, IAU Symposium 278, 373. [ads](#).
- [nr23] 2011 **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 (HANSE) 2011 conference, DESY Proc. Ser. 22. [ads](#).
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- [nr21] 2011 E. O'Connor and **C. D. Ott**, *Thermal Effects on Black Hole Formation in Failed Core-Collapse Supernovae*, proceedings of the 2010 Nuclei in the Cosmos conference, Heidelberg, Germany. [ads](#).
- [nr20] 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*, Proceedings of the HEDLA 2010 conference, Caltech, Pasadena, CA, USA, *Astroph. Sp. Sc.*, 336, 151. [ads](#).
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- [nr17] 2009 **C. D. Ott**, E. Schnetter, A. Burrows, F. Löffler, and E. O'Connor, *Computational Models of Stellar Collapse and Core-Collapse Supernovae*, Proceedings of the DoE/SciDAC Conference 2009, June 14-18, San Diego, CA, *J. Phys. Conf. Ser.*, 180, 012022. .
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- [nr8] 2007 L. Dessart, A. Burrows, C. D. Ott, and E. Livne, *Multi-Dimensional Simulations of the Accretion-Induced Collapse of White Dwarfs to Neutron Stars*, proceedings of “The Multicolored Landscape of Compact Objects and their Explosive Origin”, AIP Conf. Proc., Vol. 924, 126. [ads](#).
- [nr7] 2007 H. Dimmelmeier, C. D. Ott, H.-T. Janka, A. Marek, and E. Müller, *Generic Gravitational Wave Signals from the Collapse of Rotating Stellar Cores: A Detailed Analysis*, to appear in the Proceedings of the XLII Rencontres de Moriond, “Gravitational Waves and Experimental Gravity”. [ads](#).
- [nr6] 2007 A. Burrows, E. Livne, L. Dessart, C. D. Ott, *Multi-Dimensional Explorations in Supernova Theory*, Centennial Festschrift for Hans Bethe, Phys. Rep. 442, 23. [ads](#).
- [nr5] 2006 A. Burrows, E. Livne, L. Dessart, C. D. Ott, and J. Murphy, *An Acoustic Mechanism for Core-Collapse Supernova Explosions*, published in the proceedings of “Astronomy with Radioactivities V: From Gamma-Rays to Stardust”, N. Astro. Rev. 50, 487. [ads](#).
- [nr4] 2006 A. Burrows, L. Dessart, E. Livne, and C. D. Ott, *New ideas in the theory of core-collapse supernova explosions*, Proceedings of the International Symposium on Nuclear Astrophysics - Nuclei in the Cosmos - IX. 25-30 June 2006, CERN, 32.1. [ads](#).
- [nr3] 2005 A. Burrows, R. Walder, C. D. Ott, and E. Livne, *Supernovae, Rotation, and Bipolar Explosions*, Nuc. Phys. A, 752, 570. [ads](#).
- [nr2] 2004 A. Burrows, R. Walder, C. D. Ott, and E. Livne, *Rotating Core Collapse and Bipolar Supernova Explosions*, published in the proceedings of “The Fate of the Most Massive Stars”, ASP Conf. Ser. 322, 358. [ads](#).
- [nr1] 2004 A. Burrows, C. D. Ott, and C. Meakin, *Topics in Core-Collapse Supernova Theory*, published in the proceedings of “3-D Signatures in Stellar Explosions: A Workshop honoring J. Craig Wheeler’s 60th birthday”, eds. P. Höflich, P. Kumar, J. C. Wheeler, Cambridge Univ. Press, Cambridge, UK. [ads](#).

Invited Presentations

- [114] 2017, August 24 18th Lomonosov Conference on Elementary Particle Physics, Moscow State University, Moscow, Russia. Title: *Core-Collapse Supernova Mechanisms*.
- [113] 2016, October 19 International Workshop “Nuclear Physics, Compact Stars, and Compact Star Mergers” (NPCSM 2016), Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan. Title: *Core-Collapse Supernova Overview*.
- [112] 2016, September 19 Seminar, Institute for Theoretical and Experimental Physics (ITEP), Moscow, Russia. Title: *New Insights into Massive Star Explosions*.

- [111] 2016, May 2 Astrophysics Seminar, Universität Kiel, Germany. Title: *New Insights into Massive Star Explosions*.
- [110] 2016, January 27 Colloquium, Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan. Title: *New Insights into Massive Star Explosions*.
- [109] 2015, December 5 Instituto de Cosmología y Física de las Americas (COFI) workshop on Gravitational Waves, San Juan, Puerto Rico. Title: *Simulation and Modeling of Gravitational Wave Sources*.
- [108] 2015, December 1 Embry-Riddle Aeronautical University (Prescott, AZ) Physics Science Speaker Series. Title: *New Insights into Massive Star Explosions*.
- [107] 2015, November 23 DUNE Supernova Workshop, SLAC. Title: *Core-Collapse Supernova Simulations: Overview & Status*.
- [106] 2015, November 19 Oak Ridge National Laboratory Physics Seminar. Title: *New Insights into Massive Star Explosions and an Update on Advanced LIGO*.
- [105] 2015, November 13 Physics and Astronomy Colloquium, Ohio University. Title: *New Insights into Massive Star Explosions*.
- [104] 2015, October 30 Astrophysics seminar, Stony Brook University. Title: *Core-Collapse Supernovae are Turbulent Beasts*.
- [103] 2015, October 29 International Workshop for the Next Generation Nucleon Decay and Neutrino Detector (NNN15) and Unification Day 2 (UD2), Stony Brook University. Title: *Supernova Neutrinos – A Review*.
- [102] 2015, July 15 International Supercomputing Conference, Frankfurt, Germany. Title: *Progress in Extreme Astrophysics via Large-Scale Computation*.
- [101] 2015, May 21 KIPAC Colloquium, Stanford University. Title: *New Aspects of Core-Collapse Supernova Theory*.
- [100] 2015, February 28 DOE Topical Collaboration on Neutrinos and Nucleosynthesis in Hot and Dense Matter Workshop, Lawrence Berkeley Laboratory, Berkeley, California. Title: *Core-Collapse Supernovae: Where we are and where we are going*.
- [99] 2014, December 15 National Academy of Sciences Committee Meeting on the Future of NSF Advanced Computing, Computer History Museum, Mountain View, California. Title: *Advanced Computing in Computational relativistic Astrophysics and Numerical Relativity*.
- [98] 2014, October 29 Astronomy Colloquium, University of California Santa Cruz. Title: *New Insights into Massive Star Explosions*.
- [97] 2014, October 9 Jet Propulsion Laboratory Astrophysics Colloquium. Title: *New Insights into Massive Star Explosions*.
- [96] 2014, October 8 Astronomy Colloquium, University of California Los Angeles. Title: *New Insights into Massive Star Explosions*.
- [95] 2014, August 14 XXVI IUPAP Conference on Computational Physics, CCP2014, Boston. Talk on: *Petascale Simulations of Core-Collapse Supernovae*.
- [94] 2014, July 14 Institute of Geophysics, Planetary Physics and Signatures (IGPPS) seminar, Los Alamos National Laboratory. Talk on: *The Death of Massive Stars in Core-Collapse Supernovae*.
- [93] 2014, June 12 FLASH Center Seminar, University of Chicago. Talk on: *New Aspects of Core-Collapse Supernova Theory*.

- [92] 2014, May 8 NSF SI2 Workshop on Challenges in Computational Astrophysics, Institute for High-Performance Computational Science with Structured Meshes and Particles, University of California Berkeley. Talk on: *Challenges for Numerical General Relativity and Computational Relativistic Astrophysics in the Petascale and Exascale Era.*
- [91] 2014, April 28 Joint Space Institute Colloquium, University of Maryland. Talk on: *New Aspects of Core-Collapse Supernova Theory.*
- [90] 2014, April 6 American Physical Society Meeting, Savannah, Florida. Talk on: *Petascale Simulations of Core-Collapse Supernovae.*
- [89] 2014, March 27 The Structure and Signals of Neutron Stars from Birth to Death Conference, Florence, Italy. Talk on: *Core-Collapse Supernovae: Recent Progress in Theory & Gravitational-Wave Emission.*
- [88] 2014, February 20 Nuclear Theory Seminar, Indiana University. Talk on: *Opportunities for Nuclear Astrophysics with Advanced LIGO.*
- [87] 2014, February 19 Physics Colloquium, Indiana University. Talk on: *New Aspects of Core-Collapse Supernova Theory.*
- [86] 2014, February 18 Astronomy Colloquium, University of Illinois. Talk on: *New Aspects of Core-Collapse Supernova Theory.*
- [85] 2013, December 13 Astrophysics Seminar, Center for Cosmology and Particle Physics, New York University. Talk on: *New Aspects of Core-Collapse Supernova Theory.*
- [84] 2013, November 19 Astrophysics Seminar, Institute for Advanced Study, Princeton. Talk on: *New Aspects of Core-Collapse Supernova Theory.*
- [83] 2013, November 5 2013 Squire Lecturer Colloquium, Department of Physics and Astronomy, Grinnell College. Talk on: *Supernova Physics and Gravitational Waves.*
- [82] 2013, October 28 Colloquium, Department of Physics and Astronomy, University of Kansas, Talk on: *Modeling the Death of Massive Stars.*
- [81] 2013, June 26 Colloquium, Indian Center for Theoretical Studies, Bangalore, India, Talk on: *Modeling the Death of Massive Stars.*
- [80] 2013, June 7 Yukawa Institute Workshop on Gravitational Waves and Numerical Relativity. Talk on *Advances in the Modeling of Stellar Collapse and Neutron Star Mergers: Where we are and where we need to go.*
- [79] 2013, May 14 51ergs Conference, North Carolina State University. Talk on *Probing Core-Collapse Supernovae with Gravitational Waves (and Neutrinos).*
- [78] 2013, February 27 Astronomy Colloquium, University of Amsterdam. Talk on *The Death of Massive Stars.*
- [77] 2013, February 18 Invited Seminar, University of Heidelberg. Talk on *The Death of Massive Stars.*
- [76] 2013, February 14 Astronomy Colloquium, Ohio State University. Talk on *The Death of Massive Stars.*
- [75] 2013, February 7 Astronomy Colloquium, Steward Observatory, Univ. of Arizona. Talk on *Core-Collapse Supernovae and Neutron Star Mergers: Cosmic Laboratories of Extreme Physics.*
- [74] 2013, February 5 Astronomy Colloquium, UT Austin. Talk on *The Death of Massive Stars.*
- [73] 2013, February 1 CITA Seminar, CITA, University of Toronto. Talk on *The Death of Massive Stars.*
- [72] 2013, January 29 Astrophysics Seminar, McGill University. Talk on *Core-Collapse Supernovae and Other Outcomes of Stellar Collapse.*
- [71] 2012, October 9 Nuclear Astrophysics Town Meeting 2012, Joint Institute for Nuclear Astrophysics (JINA). Talk on *Prospects with LIGO: Nuclear Astrophysics enable by Gravitational Wave Astronomy.*

- [70] 2012, August 20 Physics Colloquium, Monash University, Melbourne, Australia. Talk on *Stellar Collapse, Core-Collapse Supernovae, and the Formation of Stellar-Mass Black Holes*.
- [69] 2012, August 8 International Symposium on Nuclei in the Cosmos XII, Cairns, Australia. Talk on *Outcomes of Stellar Collapse and Their Signatures in Gravitational Waves and Neutrinos*.
- [68] 2012, July 30 Rattle and Shine Conference, Kavli Institute for Theoretical Physics. Talk on *How to Rattle & Shine right: Microphysics – What, When, Why, How?*.
- [67] 2012, July 18 Institute for Nuclear Theory, University of Washington, Workshop on Core-Collapse Supernovae. Talk on (1) *Update on Gravitational-Wave Detectos*, (2) *The Gravitational Wave Signature of Core-Collapse Supernovae*.
- [66] 2012, June 12 Lunch Seminar, Kavli IPMU, Kashiwa, Japan, talk on (1) *Update on Gravitational-Wave Detectors*, (2) *New Insights into the Central Engine of Long Gamma-Ray Bursts*.
- [65] 2012, June 9 Neutrino 2012 Conference, Kyoto, Japan, plenary talk on *Core-Collapse Supernova Theory – Where we are and where we are heading*.
- [64] 2012, May 15 Sackler Conference on Astrophysics, Harvard University, talk on *Testing General Relativity with Core-Collapse Supernovae*.
- [63] 2012, May 1 Colloquium, MIT, Astrophysics Division, talk on *Core-Collapse Supernova Theory – Where we are and where we are heading*.
- [62] 2012, April 18 Colloquium, University of Rochester, Department of Physics and Astronomy, talk on *The Dawning of the Age of Gravitational Wave Astronomy*.
- [61] 2012, April 4 Colloquium, Caltech, Astronomy Department, talk on *Core-Collapse Supernova Theory 78 Years after Baade & Zwicky 1934 – Where we are and where we are heading*.
- [60] 2012, January 30 Colloquium, JILA, University of Colorado, talk on *Stellar Collapse, Core-Collapse Supernovae, and the Formation of Stellar-Mass Black Holes*.
- [59] 2011, November 23 Seminar, Institut für Theoretische Physik, Universität Frankfurt, talk on *New Aspects, Boundary Conditions and Horizons of Core-Collapse Supernova Theory*.
- [58] 2011, October 25 Physics Colloquium, Stony Brook University, talk on *Stellar Collapse, Core-Collapse Supernovae, and Black Hole Formation*.
- [57] 2011, October 17 Physics Colloquium, Cornell University, talk on *Stellar Collapse, Core-Collapse Supernovae, and Black Hole Formation*.
- [56] 2011, July 20 Hamburg Neutrinos from Supernova Explosions (HANSE) 2011 Conference, DESY Hamburg. Talk on *New Aspects and Boundary Conditions of Core-Collapse Supernova Theory*.
- [55] 2011, May 21 Advances in Computational General Relativity conference, Brown University. Talk on *Recent Advances in General Relativistic Stellar Collapse*.
- [54] 2011, May 1 American Physical Society April Meeting, Anaheim, CA. Invited session talk on *Modeling Core-Collapse Supernovae*.
- [53] 2011, April 20 Michigan State University, Nuclear Seminar. Presentation on *The Formation of Black Holes in Failing Core-Collapse supernovae*.
- [52] 2011, April 5/7 From Nuclei to White Dwarfs and Neutron Stars workshop, Les Houches, France. Lecture on *Stellar Collapse, Core-Collapse Supernovae and Stellar Mass Black Hole Formation* and lecture on *Gravitational-Wave Astronomy*.
- [51] 2011, March 21 The University of Arizona, Theoretical Astrophysics Colloquium: *Black Hole Formation in Failing Core-Collapse Supernovae*.
- [50] 2011, March 2 University of California, Santa Cruz, Astronomy Colloquium: *Black Hole Formation in Failing Core-Collapse Supernovae*.

- [49] 2011, February 11 Harvard CFA/ITC Lunch talk. 10-minute Presentation on *LIGO, Gravitational Waves, and Core-Collapse Supernova Physics*.
- [48] 2011, February 10 Harvard CFA/ITC Colloquium. Presentation on *Black Hole Formation in Failing Core-Collapse Supernovae*.
- [47] 2011, February 9 MIT LIGO GRAILS seminar. Presentation on *Black Hole Formation in Failing Core-Collapse Supernovae*.
- [46] 2010, December 1 Institute for the Physics and Mathematics of the Universe (IPMU), Tokyo, Japan. Presentation on *Black Hole Formation in Failing Core-Collapse Supernovae*.
- [45] 2010, November 30 Interdisciplinary Symposium "From Quarks to Supernovae", Atakami, Japan. Presentation on *Recent Progress in the Modeling of Stellar Collapse and Core-Collapse Supernovae*.
- [44] 2010, November 2 Fall Meeting of the APS Division of Nuclear Physics, Santa Fe, NM. Presentation on *Formation of Black Holes in Failing Core-Collapse Supernovae*.
- [43] 2010, October 16 Gravitational Waves 2010 Conference, University of Minnesota. Presentation on *Gravitational Waves from Stellar Collapse*.
- [42] 2010, October 12 Physics Colloquium, University of Mississippi. Presentation on *Black Hole Formation in Failing Core-Collapse Supernovae*.
- [41] 2010, October 5 Physics Colloquium, Washington State University. Presentation on *Black Hole Formation in Failing Core-Collapse Supernovae*.
- [40] 2010, September 3 Astronomy Colloquium, University of California at Berkeley. Presentation on *Black Hole Formation in Failing Core-Collapse Supernovae*.
- [39] 2010, August 27 Seminar, Center for Computational Relativity and Gravitation, Rochester Institute of Technology. Presentation on *Stellar Collapse and Black Hole Formation*.
- [38] 2010, July 6 International conference on General Relativity and Gravitation 19 (GR19), Mexico City. Presentation on *Stellar Collapse and Black Hole Formation*.
- [37] 2010, May 1 Workshop in Honor of W. D. Arnett on the occasion of his 70th Birthday, The University of Arizona, Tucson, AZ. Presentation on *General-Relativistic Simulations of Stellar Collapse and the Formation of Stellar-Mass Black Holes*.
- [36] 2010, March 17 International conference on High Energy Density Laboratory Astrophysics (HEDLA), Caltech. Presentation on *General-Relativistic Simulations of Stellar Collapse and the Formation of Stellar-Mass Black Holes*.
- [35] 2010, March 9 omeg10 Symposium on the Origin of Matter and Evolution of the Galaxies, Osaka, Japan. Presentation on *Recent Progress in Theory of Core-Collapse Supernovae and Gamma-Ray Burst Central Engines*.
- [34] 2010, February 23 JIGSAW10 Workshop on Supernova Astroparticle Physics, TIFR, Mumbai, India. Presentation on *Stellar Collapse, Core-Collapse Supernovae, and the Formation of Stellar-Mass Black Holes*.
- [33] 2010, February 15 APS April 2010 Meeting, Washington, DC. Presentation on *Simulations of Stellar Collapse, Core-Collapse Supernovae, and Stellar-Mass Black Hole Formation*.
- [32] 2009, November 18 Astrophysics Seminar, CASS, UCSD. Presentation on *Probing the Mechanism of Core-Collapse Supernovae with Gravitational Waves*.
- [31] 2009, October 24 Conference on Computational Relativistic Astrophysics, Princeton Center for Theoretical Science. Presentation on *Probing the Mechanism of Core-Collapse Supernovae with Gravitational Waves*.
- [30] 2009, September 15 Astrophysics Seminar, SISSA, Trieste, Italy. Presentation on *Probing the Mechanism of Core-Collapse Supernovae with Gravitational Waves*.

- [29] 2009, July 16 12th Marcel Grossmann Conference on General Relativity, Paris, France. Presentation on *Probing the Mechanism of Core-Collapse Supernovae with Gravitational Waves*.
- [28] 2009, June 19 Workshop on Gravitational Waves from Neutron Star, Center for Gravitational Wave Physics, Penn State. Presentation on *Core-Collapse Supernova Mechanisms and Their Signatures in Gravitational Waves*.
- [27] 2009, June 17 Featured Talk, Scientific Innovation through Advanced Computing (SciDAC) conference, San Diego, CA. Presentation on *Core-Collapse Supernova Mechanisms and Constraints from Gravitational Wave Astronomy*.
- [26] 2009, May 28 57th Fujihara Seminar, “International Network of Gravitational Wave Observatories,” Shonan, Japan. Presentation on *The Death of Massive Stars: Science Opportunities with Gravitational Wave Observatories*.
- [25] 2009, May 25 Theory Seminar, National Observatory of Japan (NAOJ), Mitaka, Tokyo, Japan. Presentation on *Core-Collapse Supernova Mechanisms and their Signatures in Gravitational Waves*.
- [24] 2009, May 15 Physics Colloquium, University of Wisconsin-Milwaukee. Presentation on *Core-Collapse Supernova Mechanisms and their Signatures in Gravitational Waves*.
- [23] 2009, May 12 Gravitational-Wave Advanced Detector Workshop, Ft. Lauderdale, Florida. Presentation on *The high-frequency window: Nuclear Physics and Astrophysics with Gravitational Waves emitted by the Dynamics of Matter at High Densities and Energies*.
- [22] 2009, Mar. 10 Special Theoretical Astrophysics Seminar, TAPIR, California Institute of Technology. Presentation on *The Death of Massive Stars*.
- [21] 2009, Feb. 6 Special Theoretical Astrophysics Seminar, Institute for Theoretical Physics, University of Frankfurt. Presentation on *Core-Collapse Supernova Mechanisms and Their Signatures in Gravitational Waves*.
- [20] 2009, Feb. 4 Astrophysics Seminar, UC Irvine. Presentation on *Core-Collapse Supernova Mechanisms and Their Signatures in Gravitational Waves*.
- [19] 2009, Jan. 27 Cornell Theoretical Astrophysics Lunch Seminar, Cornell University, Ithaca, NY. Presentation on *Nonaxisymmetric Rotational Instabilities in the Core-Collapse Context*.
- [18] 2009, Jan. 22 Gravitational Wave Data Analysis Workshop 13, San Juan, Puerto, Review talk on core-collapse supernova modeling and the gravitational wave signature of core collapse supernovae.
- [17] 2009, Jan. 13 Center for Gravitational Wave Physics Seminar Series, Penn State. Presentation on *Understanding the Explosion Mechanism of Core-Collapse Supernovae with the Help of Gravitational Waves*.
- [16] 2008, Nov. 25 Caltech/JPL Association for Gravitational-Wave Research Seminar Series. Presentation on *Understanding the Explosion Mechanism of Core-Collapse Supernovae with the Help of Gravitational Waves*.
- [15] 2008, Jun. 30 - Jul. 11 Workshop: Asymmetric Instabilities in Stellar Core Collapse. Two presentations: (a) *Comparison of radiation-transport schemes for core-collapse supernova simulations* and (b) *GW emission in core-collapse supernovae*.
- [14] 2008, May 29 Aspen Center for Physics. Colloquium, *Core-Collapse Supernova Mechanism and Their Signatures in Gravitational Waves*.
- [13] 2008, Apr. 12 - 15 APS April Meeting. Invited talk on *Core-Collapse Supernova Theory and Gravitational Wave Emission*.
- [12] 2008, Mar. 6 Niels Bohr Institute. Seminar on *General Relativistic Simulations of Core-Collapse Supernovae and Gamma-Ray Bursts*.

- [11] 2008, Jan. 24 - 29 APCTP Winter School on Black Hole Astrophysics 2008, Daejeon & Pohang, S. Korea. Lectures on Core-Collapse Supernova Theory and Black Hole Formation.
- [10] 2007, Dec. 20 University of Basel, Department of Physics. Seminar on *Aspects of Core-Collapse Supernova Theory*.
- [9] 2007, Dec. 17 Max Planck Institute for Chemistry, Department of Cosmochemistry. Seminar on *Core-Collapse Supernova Mechanisms and Their Observables*.
- [8] 2007, Nov. 14 SUNY Stony Brook, Department of Physics and Astronomy. Seminar on *Aspects of Core-Collapse Supernova Theory*.
- [7] 2007, Sep. 20 University of Southampton, Applied Mathematics Department. Seminar on *The Core-Collapse Supernova Explosion Mechanism and the Gravitational Wave Signature of Core-Collapse Supernovae*, Southampton, UK.
- [6] 2007, Sep. 10 – 15 Trento ECT Meeting *Matter at Extreme Densities and Gravitational Waves from Compact Objects*. Presentation on *Gravitational Wave Emission Processes in the Postbounce Phase of Core-Collapse Supernovae: Indicators of the Explosion Mechanism?*, Trento, Italy.
- [5] 2007, Jan. 16 German Science Foundation research collaboration SFB/Transregio 7 *Gravitational Wave Astronomy* video talk series. Presentation on *3D Collapse of Rotating Stellar Iron Cores in General Relativity including Deleptonization and a Nuclear Equation of State*.
- [4] 2006, Jan. 23 – 24 Institut d’Astrophysique, Paris, France. ILIAS meeting on gravitational wave sources and detection. Talk on *Core-Collapse Supernova Rates and Detectability in Gravitational Waves*.
- [3] 2005, Sept. 12 Max-Planck-Institut für Gravitationsphysik, Potsdam, Germany. Meeting of the external Advisory Committee. Presentation on *3D GR Stellar Core Collapse*.
- [2] 2005, May 23 German Science Foundation research collaboration SFB/Transregio 7 *Gravitational Wave Astronomy* video talk series. Presentation on *One-armed Spiral Instability in a Low- $T/|W|$ Postbounce Supernova Core*.
- [1] 2002, Sep. 26 3rd Meeting of the European Union Research Training Network *Sources of Gravitational Waves*, Palma, Spain. Presentation on *Ingredients for a New Generation of Supernova Gravitational Radiation Calculations*.

Contributed Presentations

- [36] 2017, July 11 Physics of Neutron Stars 2017, St. Petersburg, Russia. Talk on *Core-Collapse Supernova Mechanisms*.
- [35] 2015, May 12 Blue Waters Symposium 2015. Talk on *(MHD) Turbulence in Core-Collapse Supernovae*.
- [34] 2015, April 15 Los Alamos National Laboratory, IGPPS Days. Talk on *Core-Collapse Supernovae, Gamma-Ray Bursts, and Neutrino Transport*.
- [33] 2014, April 8 American Physical Society April Meeting, Savannah, GA. Talk on *Models of Core-Collapse Supernova Explosions: Uncertainties in Presupernova Stellar Structure*.
- [32] 2013, April 15 American Physical Society April Meeting, Denver, CO. Talk on *The Gravitational-Wave Signature of Core-Collapse Supernovae*.

- [31] 2012, July 26 Institute of Nuclear Theory, University of Washington, Workshop on Core-Collapse Supernovae. Talk on *Inferring Core-Collapse Supernova Physics from Gravitational Waves*.
- [30] 2011, May 1 American Physical Society April meeting, Anaheim, CA. Presentation on *Dynamics and Gravitational Wave Signature of Collapsar Formation*.
- [29] 2011, Feb. 23 Fireworks workshop on cosmic explosions, Caltech. Review Presentation on *Recent Progress in the Modeling of Stellar Collapse and Core-Collapse Supernovae*.
- [28] 2010, Jun. 26 Numerical Relativity meets Data Analysis 2010 conference, Perimeter Institute, Waterloo, CA. Presentation on *Gravitational Waves from Core-Collapse Supernovae and Black Hole Formation*.
- [27] 2010, December 7 LIGO and VIRGO Scientific Collaboration externally triggered search telephone conference. 15-minute presentation on *Dynamics and Gravitational Wave Signature of Collapsar Formation*.
- [26] 2010, Feb. 15 APS April Meeting, Washington, DC. Presentation on *Gravitational-Wave Emission from Soft-Gamma Repeaters*.
- [25] 2009, Oct. 14 2nd Einstein Telescope workshop, Erice, Italy. Presentation on *Core-Collapse Supernova and Long-Soft GRB Science Goals for ET*.
- [24] 2009, July 16 12th Marcel Grossmann Conference on General Relativity, Paris, France. Presentation on *Gravitational Waves from Convection, SASI and the Onset of Explosion in Core-Collapse Supernovae*.
- [23] 2009, July 8 Numerical Relativity Data Analysis Conference, Albert Einstein Institute, Potsdam, Germany. Presentation on *Probing the Mechanism of Core-Collapse Supernovae with Gravitational Waves*.
- [22] 2009, July 2 Topics in Astroparticle and Underground Physics TAUP 2009, Rome, Italy. Presentation on *Probing the Mechanism of Core-Collapse Supernovae with Gravitational Waves*.
- [21] 2009, Jun. 24 8th Amaldi Conference on Gravitational Waves, Columbia University, NY, NY. Presentation on *Gravitational Waves from Convection, SASI and the Onset of Explosion in Core-Collapse Supernovae*.
- [20] 2009, May 4 APS April Meeting 2009, Denver, CO, presentation on *Gravitational Waves from Convection, SASI and the Onset of Explosion in Core-Collapse Supernovae*.
- [19] 2008, Oct. 24 Theoretical Astrophysics in Southern California Meeting 2008, UC Irvine. Presentation on *Constraining the Mechanism of Core-Collapse Supernova Explosions with Gravitational Waves*.
- [18] 2008, Sept 8 – 12 Conference on the Modeling of Gravitational Wave Sources, Valencia, Spain. Presentation on *Core-Collapse Supernova Mechanisms and their Signatures in Gravitational Waves*.
- [17] 2008, Apr. 7 – 9 US DoE/SciDAC Astrophysics Simulation Consortium Meeting, KIPAC Stanford. Presentation on *2D Multi-Angle, Multi-Group Radiation-Hydrodynamic Simulations of Postbounce Supernova Cores*.
- [16] 2008, Feb. 10 – 14 Workshop on GR Core-Collapse Simulations, MPA Garching. Presentation on *New Results on the GW Signature of Rotating Iron Core Collapse*.
- [15] 2007, Aug. 19 – 21 Notre Dame University, South Bend, Joint Institute for Nuclear Astrophysics Frontiers Meeting. Presentation on *Core-Collapse Supernova Theory, Gravitational Waves and Nuclear Astrophysics*.
- [14] 2007, May 31 – Jun. 2 Cornell University, 10. East Coast Gravity Meeting. Presentation on *Recent Progress in Modeling the Gravitational Wave Signature of Core-Collapse Supernovae*.

- [13] 2007, May 14 Theoretical Astrophysics Program, The University of Arizona, Internal Symposium. Presentation on *3D Stellar Iron Core Collapse in General Relativity*.
- [12] 2007, Feb. 27 – 28 Steward Observatory, The University of Arizona, Internal Symposium. Presentation on *The Gravitational Wave Signature of Core-Collapse Supernovae*.
- [11] 2006, Jul. 17 – 21 Albert-Einstein-Institut, New Frontiers in Numerical Relativity (NFNR). Presentation on *Rotating Collapse of Realistic Stellar Iron Cores in General Relativity – II. 3D Full GR Results*.
- [10] 2006, Jun. 15 Center for Computation and Technology (CCT), Louisiana State University. Presentation on *The Gravitational Wave Signature of Core-Collapse Supernovae. New Results from Simulations in 3 + 1 General Relativity*.
- [9] 2005, Dec. 1 Center for Computation and Technology (CCT), Louisiana State University. Presentation on *A new Mechanism for Core-Collapse Supernova Explosions - Implications for Gravitational-Wave Astronomy*.
- [8] 2005, Nov. 14 Albert-Einstein-Institut, Institute Seminar. Presentation on *A new Mechanism for Core-Collapse Supernova Explosions - Implications for Gravitational-Wave Astronomy*.
- [7] 2004, Dec. 9 – 11 SciDAC Supernova Science Center collaboration meeting, Lawrence Livermore National Laboratory, California. Presentation on *General Relativity and Stellar Core Collapse*.
- [6] 2004, Nov. 26 Uppsala Astronomical Observatory. Institute Seminar. Presentation on *Gravitational Waves from Core-Collapse Supernovae*.
- [5] 2004, Jul. 18 – 23 GR17, the 17th International Conference on General Relativity and Gravitation, Dublin. Presentation on *Recent Progress in General-Relativistic Simulations of Rotating Stellar Core Collapse*.
- [4] 2003, Dec. 8 Universität Potsdam, Astrophysics Seminar. Presentation on *Gamma-Ray Bursts and Rotating Massive Stars - The Collapsar Scenario*.
- [3] 2002, Jan. 15 SciDAC Supernova Science Center collaboration meeting, Tucson, Arizona. Presentation on *General Relativistic 3D Core-Collapse Studies with Cactus/GR3D*.
- [2] 2002, Jul. 1 Institute for Theoretical Astrophysics, Universität Heidelberg. Institute Seminar. Presentation on *Overview on Gravitational Waves from Core-Collapse Supernovae*.
- [1] 2001, Jan. 18 Astrophysics Seminar, Universität Heidelberg. Presentation on *Millisecond Pulsars*

Public Talks and Media Contributions

- [14] 2015, Mar. 22 “Things That Explode,” podcast on The Star Spot. <http://starspotpodcast.com/2015/03/22/episode-73-things-that-explode-with-christian-ott/>.
- [13] 2015, Mar. 4 “Supernova Neutrinos,” podcast on the Physics Central Physics Buzz Blog. <http://physicsbuzz.physicscentral.com/2015/03/podcast-supernova-neutrinos.html>.
- [12] 2015, Jan. 23 “Stellar Graveyard,” 12th Annual Symposium of the Astronomy & Space Exploration Society, University of Toronto. Title: *The Theory of Stellar Death and Explosion*.
- [11] 2013, Nov. 6 2013 Squire Lecture (for a general audience), Grinnell College. Title: *The explosive Death of Stars and the Birth of a New Astronomy*.

Christian D. Ott – Publications and Presentations

- [10] 2012, Jan. 26 Popular-level talk at the California Polytechnic State University, San Luis Obispo. Title: *Listening to the Sound of Cosmic Explosions*.
- [9] 2012, Jan. 13 Popular-level talk at the Orange County Amateur Astronomers Association Meeting. Title: *Stellar Collapse, Core Collapse Supernovae, and the Formation of Stellar-Mass Black Holes*.
- [8] 2011, Nov. 17 Popular-level talk at the W. M. Keck Science Center, Claremont McKenna, Pitzer, and Scripps Colleges. Title: *Listening to the Sound of Cosmic Explosions*.
- [7] 2011, Oct. 13 Interview with the National Public Radio show “StarDate” on Gravitational Waves and LIGO (executive producer: Damond Benningfield).
- [6] 2011, Oct. 4 Interview with German Public TV station Norddeutscher Rundfunk (NRD) show “Tagesschau” on supernovae and the Nobel Prize in Physics 2011.
- [5] 2010, May 15 Public lectures to Caltech Alumni on stellar collapse, core-collapse supernovae, and gravitational waves.
- [4] 2010, Feb. Filming and 1-hour interview for the documentary “Through the Wormhole” of the Discovery Science Channel hosted by Morgan Freeman.
- [3] 2009, Oct. 11 Altes Rathaus Potsdam, Germany. Public talk in German on *Ende mit Knall – Supernovae: Das explosive Sterben der Sterne*.
- [2] 2008/2009 Interview/Feature on core-collapse supernovae and black hole formation as part of the project *Science Face* (<http://www.scienceface.org>) run by the Max Planck Society (lead: Bernard Schutz).
- [1] 2007, Jun. 26 Ricarda-Huch-Schule, Dreieich, Germany. Public talk in German on *Supernovae, Neutronensterne, und Schwarze Löcher*.