

Kuo-Chuan Pan (潘國全)

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Education

- 2007 – 2013 **University of Illinois at Urbana-Champaign, Illinois, USA**
Ph.D. in astronomy with computational science and engineering (CSE) option
Dissertation Advisor: Paul Ricker
Dissertation Title: *The fates of binary companions in type Ia supernovae within the single-degenerate scenario*
- 2000 – 2004 **National Tsing Hua University, Hsinchu, Taiwan**
B.Sc. in Physics

Experience

- 11/2016 – present **Postdoctoral Scholar**
Michigan State University, East Lansing, Michigan, USA
Core-collapse supernova mechanism
with Sean Couch
- 08/2013 – 10/2016 **Postdoctoral Scholar**
Universität Basel, Basel, Switzerland
Core-collapse supernova mechanism
with Friedrich-Karl Thielemann
- 09/2010 – 05/2012 **Computational Science and Engineering Fellow**
University of Illinois at Urbana-Champaign, Illinois, USA
Type Ia supernova simulation and code optimization
with Paul Ricker (ASTR) and Laxmikant V. Kalé (CS)
- 09/2007 – 05/2008 **Research Assistant**
National Center for Supercomputing Applications, Illinois, USA
Performed radio astronomy data analysis
with Athol Kembell
- 02/2006 – 06/2007 **Research Assistant**
Academia Sinica Institute of Astronomy and Astrophysics, Taipei, Taiwan
Code development for hydrodynamics and magnetohydrodynamics
with Chi Yuan

Honor & Awards

- 2016 Visualization image on the cover photo on the Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program press release (PI: Sean Couch), USA
- 2016 NVIDIA Spotlight Interview on GPU computing, NVIDIA, USA
- 2016 Bronze prize poster award in the NIC 2016 international conference, Niigata, Japan
- 2010 – 2012 Computational Science and Engineering Fellowships, Urbana, Illinois, USA
- 2001 – 2004 228 Incident Memorial Scholarship, Taiwan

Activities & Service

2017	Guest Editor of <i>Advances of Astronomy</i> : Special issue on Type Ia supernovae
2015 –	Referee of the <i>Computational Astrophysics and Cosmology (ComAC)</i>
2014 –	Referee of the <i>Nature Journal (Natur)</i>
2013 –	Referee of the <i>Astrophysical Journal (ApJ)</i>
2004 – 2005	Military service (2 nd Lieutenant in Army)
2003	President of astronomy club, National Tsing Hua University, Taiwan
2002	Advisor of astronomy club, National Hsinchu Girl's Senior High School, Taiwan

Professional Associations

American Astronomical Society
Astronomical Society of Taiwan

Grants & Computing Allocations

2018	2018 ALCF INCITE Award <i>Extreme-scale Simulation of Supernovae and Magnetars from Realistic Progenitors</i> 150,000,000 Mira (IBM Blue Gene/Q) core-hours 29,250,000 Mira-equivalent core-hours on Theta (Cray XC40) PI: Sean Couch
2016 – 2018	Piz-Daint Computing Allocations <i>The isotropic diffusion source approximation for the simulation of faint and faded supernova explosions with additional degrees of freedom in the equation of state</i> 750,000 node-hours (2016.04 - 2017.03) on the CrayXC30, Piz Daint 750,000 node-hours (2017.04 - 2018.03) on the CrayXC50, Piz Daint - Hybrid PI: Matthias Liebendörfer
2013	Hubble Cycle 21 <i>A search for surviving companions of type Ia supernova in the Large Magellanic Cloud</i> PI: You-Hua Chu
2010 – 2012	Computational Science and Engineering Fellowship <i>Impact of Type Ia Supernova Ejecta on Companion Star and Subsequent Evolution of Remnant</i> \$23,000 per year PI: Kuo-Chuan Pan

Recent Talks

10/2017	<i>Multimessenger signals from stellar mass black hole formation</i> TIARA miniworkshop on high energy astrophysics. Academia Sinica Institute of Astronomy and Astrophysics, Taipei, Taiwan
02/2017	† <i>Self-consistent, neutrino-driven core-collapse supernova simulations</i> Physics Colloquium, National Tsing Hua University, Hsinchu, Taiwan

†invited

- 10/2016 *Self-consistent, neutrino-driven core-collapse supernova simulations*
CompAS Seminar, Academia Sinica Institute of Astronomy and Astrophysics, Taipei, Taiwan
- 04/2016 † *Multi-dimensional core-collapse supernova simulations with the isotropic diffusion source approximation*
Astronomy seminar, Michigan State University, East Lansing, MI, USA
- 01/2016 *Multi-D simulations of core-collapse supernovae*
CompAS Seminar, Academia Sinica Institute of Astronomy and Astrophysics, Taipei, Taiwan
- 08/2015 *The isotropic diffusion source approximation for multi-D supernova simulations*
The 2015 MICRA Meeting, Stockholm, Sweden
- 08/2015 † *Multi-dimensional simulations of core-collapse supernovae*
RIKEN Seminar, Wako, Saitama, Japan
- 06/2015 *Multi-dimensional core-collapse supernova simulations with the IDSA for neutrino transport*
Fifty-One-Ergs Conference, Raleigh, NC, USA
- 05/2015 † *Multi-dimensional core-collapse supernova simulations with the IDSA for neutrino transport*
Theory Seminar, Technische Universität, Darmstadt, Germany
- 03/2015 † *Search for surviving companions in type Ia supernova remnants*
HEP division seminar, Argonne National Lab, IL, USA
- 09/2014 *Two-dimensional core-collapse supernova simulations with the isotropic diffusion source approximation for neutrino transport*
Explosive stellar transients 2014 AG meeting at Bamberg, Germany
- 07/2013 *Search for surviving companions in type Ia supernova remnants*
CompAS Seminar, Academia Sinica Institute of Astronomy and Astrophysics, Taipei, Taiwan
- 07/2013 *Search for surviving companions in type Ia supernova remnants*
Astronomy colloquium, National Tsing-Hua University, Hsinchu, Taiwan
- 04/2013 *The fates of binary companions in type Ia supernovae within the single-degenerate scenario*
Nuclear, Particle and Astrophysics Seminar, Basel University, Basel, Switzerland
- 10/2012 *Impact of type Ia supernova ejecta on binary companions within the single-degenerate scenario and subsequent evolution of post-impact remnant stars*
ITC seminar, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA
- 09/2012 *Impact of type Ia supernova ejecta on binary companions within the single-degenerate scenario and subsequent evolution of post-impact remnant stars*
CTA Theoretical Astrophysics and General Relativity Seminar, University of Illinois at Urbana-Champaign, IL, USA
- 09/2012 *Impact of type Ia supernova ejecta on binary companions and subsequent evolution of post-impact remnant stars*
Astronomy colloquium, National Tsing-Hua University, Hsinchu, Taiwan
- 04/2012 † *Impact of type Ia supernova ejecta on binary companions and subsequent evolution of post-impact remnant stars*
CSE Annual Research Symposium, University of Illinois at Urbana-Champaign, IL, USA
- 10/2011 *Impact of type Ia supernova ejecta on binary companions*
CTA Theoretical Astrophysics and General Relativity Seminar, University of Illinois at Urbana-Champaign, IL, USA
- 07/2011 *Impact of type Ia supernova ejecta on binary companions*
CFD-MHD Seminar, Academia Sinica Institute of Astronomy and Astrophysics,

	Taipei, Taiwan
04/2011	† <i>Impact of type Ia supernova ejecta on binary companions</i> 9th Annual Workshop on Charm++ and its Applications, University of Illinois at Urbana- Champaign, IL, USA
04/2011	† <i>Impact of type Ia supernova ejecta on binary companions</i> CSE Annual Research Symposium, University of Illinois at Urbana-Champaign, IL, USA
01/2010	<i>Impact of type Ia supernova ejecta on a helium star binary companion</i> Astronomy colloquium, National Tsing-Hua University, Hsinchu, Taiwan
01/2009	<i>Type Ia supernovae in close binary systems</i> CFD-MHD Seminar, Academia Sinica Institute of Astronomy and Astrophysics, Taipei, Taiwan

Teaching

2016	Master thesis co-advisor, Daniel Billingham (co-advised with Matthias Liebendörfer) Thesis title: <i>Two Current Model for Stellar Explosions</i>
2013 – 2016	Mentor, Nuclear Astrophysics
2013	Lab instructor, PHYS 211 Mechanics
2012	Teaching assistant, ASTR 542 Theoretical Stellar Physics
2012	Teaching assistant, ASTR 540 Astrophysics
2009	Teaching assistant, ASTR 406 Galaxies in the Universe
2009	Teaching assistant, ASTR 121 Interstellar Medium and the Solar System
2008	Teaching assistant, ASTR 210 General Astronomy
2002	Advisor of astronomy club, National Hsinchu Girl's Senior High School, Taiwan