

# Wolfgang E. Kerzendorf

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## Education

- 2007–2011 **PhD**, *Australian National University*, Canberra, Australia.  
2002–2006 **Vordiplom**, *Carl-Ruprecht-Universität*, Heidelberg, Germany.

## PhD (2007-2011)

- title *Type Ia supernovae: Progenitors and Explosions*  
supervisor Brian P. Schmidt,  
supervisory panel Frank H. Briggs, Mike S. Bessell, Bruno Leibundgut, Reynald Pain

## Research Interests

Supernova Physics, Stellar Evolution, Binary stars, Radiative Transfer, Survey Astronomy

## Experience

- 2014–present **ESO Fellow**, *European Southern Observatory*, Munich, Germany.  
2011–2014 **Postdoctoral Fellow**, *University of Toronto*, Toronto, Canada.  
2009-2010 **System Manager**, *Mt Stromlo Observatory*, Canberra, Australia.  
End-user support and maintenance of the computer environment at Mt Stromlo Observatory  
2007 **Research Assistant**, *Max-Planck-Institute for Astrophysics*, Munich, Germany.  
Reducing a set of imaging and spectral data for one supernova  
2006 **Internship**, *Australian National University*, Canberra, Australia.  
Reducing imaging and spectral data and developing a web-interface for GRB alerts.  
2005 **Research Assistant**, *Max-Planck-Institute for Astronomy*, Heidelberg, Germany.  
Implementing a computer control for the electronically controlled 0.7 m KING telescope at the Institute  
2002-2003 **Research Assistant**, *Carl-Ruprecht-Universität*, Heidelberg, Germany.  
Developing an interactive educational DVD for first year physics

## Awards & Scholarships

- 2010 **Best Film**, *Awarded for Film 'Starcatchers' in the ANU Science Video Competition*, Australian National University.  
2009 **Runner up for best Student talk**, *Awarded at ASA Melbourne meeting*, Astronomical Society of Australia.  
2007–2011 **RSAA Top-Up Scholarship**, *PhD scholarship*, Mt Stromlo Observatory.  
2007 & 2011 **ANU Vice Chancellor's Special Award**, *Awarded to the Outreach group*, Mt Stromlo Observatory.

## Professional Service Activities [selected]

- 2014–present **Member of the Data Science Group**, *ESO*.  
2012–present **Lead of the Astropy spectrum utilities package**.

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- 2010–2011 **Time Allocation Committee**, *Mount Stromlo Observatory*.
- 2010–2011 **Member of Astronomy Data Archive Committee**, *Mount Stromlo Observatory*.
- 2009 **LOC for Murchison Widefield Array Meeting**, *Mount Stromlo Observatory*.
- 2007–2011 **Public Outreach**, *Mount Stromlo Observatory*.

## Professional Development

- 2007 **Science Communication Graduate Course**, *Australian National University*.
- 2010 **Media and communication training for scientists**, *Econnect Communication*.
- 2015 **Project Management**, *Epoc Training*.

## Talks [selected]

- 2015 **Supernova Companions**, *Raleigh*, United States.
- 2013 **Supernova Progenitors**, *Lorentz Center - Leiden*, Netherlands.
- 2012 **Donor star hunt in the Galaxy and beyond**, *Garching*, Germany.
- 2012 **Hunting Type Ia progenitors in ancient Remnants**, *Oxford*, UK.
- 2011 **Type Ia progenitor hunt in ancient remnants**, *Padova*, Italy.
- 2010 **Hunting progenitors in ancient remnants**, *IAP Annual Colloquium*, Paris.
- 2010 **Python in astronomy**, *Programming for Scientists (Guest Lecture)*, ANU, Australia.
- 2009 **Looking for the Smoking Gun - Progenitor systems of Type Ia supernova**, *ASA Annual Meeting*, Melbourne.

## Supervisory Roles [selected]

- 2014 – 2015 **Vytautas Jančauskas**, *Fitting Type Ia spectra with differential evolution algorithms*.
- 2014 – 2015 **Aoife Boyle**, *Helium in the spectra of Type Ia supernovae*.
- 2012 **Adam Suban-Loewen**, *Optimizing compute time for supernova radiative transfer*.
- 2012 **Maryam Patel**, *Constructing test cases for theoretical supernova models*.
- 2012 **Pegah Salbi**, *Analyzing and calibrating Arctic telescope data (summer scholar)*, University of Toronto.
- 2009 **Natalia Shaw**, *Galaxy dynamics (Highschool intern)*, Australian National University.

## Languages

- English **Fluent**
- German **Native speaker**

## Computing

### Computer Languages

- Expert Python, Relational Databases
- Intermediate Perl, C, C++, Java, various scripting languages

### Computer Administration

- Expert Linux, Relational databases

### Miscellaneous

Cluster administration, Virtual Observatory, Artificial Intelligence Algorithms

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Listings only include proposals that I led or made major contributions to.

## Observing

Year	Instrument	Title	Time	Role
2009	VLT FLAMES 083.D-0805(A)	The progenitor of SN 1006	13h	PI
2009	SSO 2.3m WIFES	Searching the Kepler supernova remnant for the Donor Star	6 nights	PI
2011	Gemini GNIRS GN-2010B-SV-145	Searching for Type Ia progenitors in SN1572	3.7h	PI
2012	VLT NACO 090.D-0112(A)	V445 Puppis - A unique opportunity to study helium novae	2h	Col
2012	Gemini GMOS G2-2012B-Q-49	Supernova companions	24h	PI
2013	HST STIS GO13432	To be or not to be the progenitor: The question about Tycho-B	2 orbits	PI
2013	VLT SINFONI 092.D-0434(A)	V445 Puppis - A unique opportunity to study helium novae	4h	Col
2013	Gemini GMOS & NIRI GN-2014A-Q-24	SN2011fe at late times	14.1h	PI
2014	HST WFC3/ACS GO13824	SN 2011fe - tackling the Type Ia progenitor puzzle through extremely late time photometry	7 orbits	PI
2015	Gemini GNIRS GN2015A-FT3	Late time Near Infrared spectroscopy of SN2014J	16 hrs	Col

## Computing

Year	Cluster	Description	CPU hours	Role
2015	C2PAP - LRZ cluster	Exploring Type Ia supernovae through mass spectral fitting	400 000	PI
2016	C2PAP - LRZ cluster	Exploring Type Ia supernovae through mass spectral fitting (contin.)	700 000	PI

## Grants

Year	Funding Scheme	Description	Amount	Role
2013	ESA Summer of Code in Space	one student for three months working on AstroPy/specutils	4000 Euro	PI
2013	Google Summer of Code	two students for three months working on AstroPy	10 000 USD	Col and mentor
2014	Google Summer of Code	one students for three months working on TARDIS	5500 USD	PI and Mentor
2015	Google Summer of Code	three students for three months working on TARDIS	18 000 USD	PI and Mentor

## Software contributions

Most contributions publicly available in 21 repositories<sup>1</sup> on github.com written in a variety of languages<sup>2</sup>. One of my major contributions are to ASTROPY<sup>3</sup> which is a framework for data reduction and analysis in python. It has 145 contributors and represents roughly 100 000 lines of code<sup>4</sup>. I co-lead the NDData package within this framework and am the lead for the affiliated SPECUTILS subpackage that is committed to providing spectral support for ASTROPY.

My other main contribution is to the TARDIS<sup>5</sup> radiative transfer code which I lead. This code currently has 17 contributors and 12 000 lines of code<sup>6</sup>. The development is done by a collection of astrophysicists, statisticians and computer scientists.

<sup>1</sup><http://github.com/wkerzendorf>

<sup>2</sup><http://coderstats.net/github/wkerzendorf/>

<sup>3</sup><http://github.com/astroPy/astroPy>

<sup>4</sup><https://www.openhub.net/p/astroPy>

<sup>5</sup><http://github.com/tardis-sn/tardis>

<sup>6</sup><https://www.openhub.net/p/tardis-sn>