

# Andreas Flörs

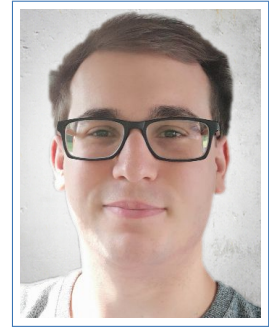
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Date of birth: December 08, 1990

Nationality: German



## Employment

- 09/2020 - **Post-doctoral Research Scientist**, Max-Planck-Institut für Astrophysik, Garching, present Germany
- 05/2015 - **Student trainee**, Chair E62, TU München
- 08/2015 Developments and improvements of a GEM-TPC detector simulation

## Education

The German system recognizes grades from 1.0 (best) to 4.0 (lowest possible passing grade)

- 03/2017 - **PhD in Astrophysics** *Max-Planck-Institut für Astrophysik, Garching, Germany.*
- 08/2020 Thesis: *The Neutron-Rich Ejecta of Type Ia Supernovae and Constraints on the Exploding Mass of their Progenitors*  
Supervisor: Prof. Dr. Wolfgang Hillebrandt  
Co-supervisor: Dr. Jason Spyromilio
- 04/2015 - **M.Sc. degree in Nuclear, Particle and Astrophysics**, *Physics Department,*
- 02/2017 *Technische Universität München, München, Germany.*  
Thesis: *The Diversity of Nebular Spectra of Type Ia Supernovae*  
Supervisor: Prof. Dr. Wolfgang Hillebrandt  
Final mark: 1.3
- 10/2011 - **B.Sc. degree in Physics**, *Physics Department, Technische Universität München,*
- 03/2015 *München, Germany.*  
Thesis: *Is the Higgs boson THE Higgs boson?*  
Supervisor: Prof. Dr. Martin Beneke  
Final mark: 1.5

## Scholarships, Awards, Honors and Grants

- 08/2020 **Kippenhahn prize**, *Best scientific paper written by a student at the Max-Planck Institute for Astrophysics in 2019, Garching, Germany.*
- 04/2019 **STScI Spring Symposium 2019 travel grant**, \$ 700
- 01/2018 **Best poster prize**, *Supernovae - From Simulations to Observations and Nucleosynthetic Fingerprints, Bad Honnef, Germany.*
- 03/2017 - **ESO studentship programme**: PhD support for two years at the European Organisation for Astronomical Research in the Southern Hemisphere (ESO).
- 02/2019

- 10/2011 - **Max Weber-Programm Alumnus:** Implementation of the German National Merit present Foundation according to the Bavarian Elite Support Act for highly-gifted students at universities in Bavaria.
- 2011 **Best Abitur Certificate in Bavaria**

## Scientific Collaborations

- 10/2019 - **adH0cc** *Accurate determination of  $H_0$  with core-collapse supernovae*; responsible for present data reduction, including the development of data reduction pipelines.
- 03/2019 - **TARDIS-SN**; *TARDIS-SN is an open-source Monte Carlo radiative-transfer spectral synthesis code for 1D models of supernova ejecta*; member of the core development present team.
- 02/2019 - **Collaboration with Dr. Stuart Sim**; *Determination of the ionization state of iron* 05/2019 *in thermonuclear supernovae*; Queen's University Belfast, Belfast, UK
- 02/2018 - **ENGRAVE** *Electromagnetic counterparts of gravitational wave sources at the Very* present *Large Telescope*; member of the 'Spectroscopy' and 'Public Outreach' groups.
- 03/2017 - **ePESSTO+**, *Public ESO Spectroscopic Survey for Transient Objects*; member of the present 'Faint & Fast Transients' and 'Nearby Thermonuclear Supernovae' research groups.

## Teaching

Supervision of undergraduate and graduate students:

- 05/2020 - **Google Summer of Code 2020 Mentor of Ezequiel Pássaro**, *Universidad Na-*  
07/2020 *cional de La Plata, La Plata, Argentina,*  
*Comparing TARDIS-SN spectra generated with different atomic data sources.*
- 05/2019 - **Google Summer of Code 2019 Mentor of Ezequiel Pássaro**, *Universidad Na-*  
07/2019 *cional de La Plata, La Plata, Argentina,*  
*Implementation of a version-controlled, automatically-updated atomic data base for radiative transfer codes.*

Teaching assistant for undergraduate courses:

- 2018 TA for extragalactic astrophysics, *TU München*, Prof. Dr. S. Suyu.
- 2017 TA for extragalactic astrophysics, *TU München*, Prof. Dr. S. Suyu.
- 2017 TA for physics for electrical engineering, *TU München*, Prof. Dr. F. Klappenberger.
- 2017 TA for nuclear, particle and astrophysics, *TU München*, Prof. Dr. L. Oberauer.
- 2016 TA for relativity, particles and fields, *TU München*, Prof. Dr. M. Ratz. W
- 2016 TA for theoretical electrodynamics, *TU München*, Prof. Dr. N. Kaiser.

## Languages

German Native

English Fluent

*English for Academic Purposes C1, TU München, Jan 2015*

*Academic English C1, Hilderstone College, Broadstairs, UK, Mar 2015*

French Basic

## IT and data reduction

Programming Python (advanced), C (basic)  
OS Linux, Windows, Mac

VCS git, github

Office L<sup>A</sup>T<sub>E</sub>X, Open/MS/Libre Office

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## Qualifications, Schools and Workshops

- 08/2019 **Second Radiative Transfer Code Comparison Workshop**, *Max-Planck-Institut für Astrophysik, Germany*  
Analysis and comparison of synthetic supernova spectra computed by 9 different codes.
- 11/2018 **Neutron Star Merger Training Workshop**, *Bertinoro, Italy*  
Data reduction and interpretation for electromagnetic counterparts of gravitational wave events.
- 10/2018 **Leadership and mentoring training**, *ESO Garching, Germany*  
Introduction into delegating tasks, communicating expectations, leading students.
- 06/2018 **First Radiative Transfer Code Comparison Workshop**, *Weizmann Institute for Science, Israel*  
Analysis and comparison of synthetic supernova spectra computed by 9 different codes.
- 03/2018 **Communication skills training**, *ESO Garching, Germany*  
How to give a science talk aimed at different audiences.
- 05/2017 **First Italian Summer School on Astrostatistics**, *Milan, Italy*  
Hands-on workshop on Bayesian statistics, inference and statistical sampling.
- 01/2017 - 06/2017 **MPA/ESO Radiative Transfer Course**, *Max-Planck-Institut für Astrophysik, Germany*  
Basics of radiative transfer theory and numerical methods for solving LTE and non-LTE radiative transfer problems.

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## Public Outreach

- 10/2020 **CodeForCause**, *YouTube Live Stream*  
Scientific computing for undergraduates across the globe.
- 2018, 2019 **Presenter for the *European Researcher's Night***, *ESO Supernova, Garching, Germany*  
Supernovae for laypeople.
- 07/2018 **Lunar Eclipse Event**, *ESO Supernova, Garching, Germany*, Telescope assistance and public talks.
- 2018 - present **Presenter at the ESO Supernova**, *ESO Supernova, Garching, Germany*  
Planetarium shows, exhibition and premises tours, public talks.
- 2016 - 2018 **ESO Open House Day**, *ESO Garching, Germany*  
Comet building for children.

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## Publications

10/2019 refereed: 10 — first author 2 — citations 1761 — h-index 6

### Refereed first author papers:

- 2019 **Flörs, A.**, Spyromilio, J., Taubenberger, S., et al. *Sub-Chandrasekhar progenitors favoured for type Ia supernovae: Evidence from late-time spectroscopy*, accepted for publication in MNRAS, 2019 ([arXiv:1909.11055](#))
- 2018 **Flörs, A.**, Spyromilio, J., Maguire, K., et al. *Limits on stable iron in Type Ia supernovae from near-infrared spectroscopy*, A&A, 620, A200, 2018 ([arXiv:1810.10781](#))

### Refereed collaboration papers:

- 2019 Pastorello, A., (+17 additional authors), **Flörs, A.**, et al. *The evolution of luminous red nova AT 2017jfs in NGC 4470*, A&A, 625, L8, ([arXiv:1906.00811](#))

- 2017 Abbot et al., *Multi-messenger Observations of a Binary Neutron Star Merger*, ApJL, 848, L12, 2017 (arXiv:1710.05833)
- 2017 Smartt, S. J., Chen, T.-W., Jerkstrand, A., et al. *A kilonova as the electromagnetic counterpart to a gravitational-wave source*, Nature, 551, 75, 2017 (arXiv:1710.05841)

#### **Refereed papers with major contribution:**

- 2019 McBrien, O., (+12 additional authors), **Flörs, A.**, et al. *SN2018kzr: a rapidly declining transient from the destruction of a white dwarf*, submitted to A&A, (arXiv:1909.04545)
- 2019 Prentice, S., (+1 additional author), **Flörs, A.**, et al. *The rise and fall of an extraordinary Ca-rich transient – The discovery of ATLAS19dqr/SN 2019bkc*, submitted to A&A, (arXiv:1909.05567)
- 2019 Taubenberger, S., **Flörs, A.**, et al. *SN 2012dn from early to late times: 09dc-like supernovae reassessed*, MNRAS, 488, 5473, 2019 (arXiv:1907.06753)
- 2018 De Cia, A., (+8 additional authors), **Flörs, A.**, et al. *Light curves of hydrogen-poor Superluminous Supernovae from the Palomar Transient Factory*, ApJ, 860, 100, 2018 (arXiv:1708.01623)
- 2018 Dhawan, S., **Flörs, A.**, Leibundgut, B., et al. *Nebular spectroscopy of SN 2014J: Detection of stable nickel in near infrared spectra*, A&A, 619, A102, 2018 (arXiv:1805.02420)

#### **Selected Contributed Talks**

- 09/2019 **The Extragalactic Explosive Universe**, ESO Garching, Germany  
Talk: "Sub-Chandrasekhar mass progenitors favoured for SNe Ia: Evidence from late-time spectroscopy"
- 08/2019 **Radiative Transfer Workshop**, Max-Planck Institute für Astrophysik, Garching, Germany  
Talk: "Bayesian inference of the progenitor systems of normal SNe Ia"
- 04/2019 **STScI Spring Symposium**, Space Telescope Science Institute, Baltimore, USA  
Talk: "Constraints on the progenitors of normal SNe Ia from nebular phase spectroscopy"
- 03/2019 **Nuclear Astrophysics**, Ringberg Castle, Germany  
Talk: "The evolution of temperature and density in the iron-rich ejecta of SNe Ia in the nebular phase"
- 12/2018 **Heidelberg Workshop on Supernovae**, Heidelberg, Germany  
Talk: "The origin of iron in SNe Ia: stable nickel"
- 06/2018 **Radiative Transfer Workshop**, Weizmann Institute of Science, Israel  
Talk: "Limits on stable iron in type Ia SNe from late-time optical and NIR spectroscopy"
- 01/ 2018 **From Simulations to Observations and Nucleosynthetic Fingerprints**, Bad Honnef, Germany  
Poster: "Limits on stable iron in type Ia SNe from late-time IR spectroscopy"
- 12/ 2017 **Heidelberg Workshop on Supernovae**, Heidelberg, Germany  
Talk: "Bayesian modelling of nebular phase observations of SNe Ia"
- 12/2016 **Würzburg Workshop on Supernovae**, Würzburg, Germany  
Talk: "Evolution of line shifts and widths in SN Ia nebular spectra"
- 03/2016 **Nuclear Astrophysics**, Ringberg Castle, Germany  
Talk: "Modelling optical nebular phase spectra of SNe Ia"