

# CURRICULUM VITAE

Matthias Klein

## PERSONAL DATA

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**Name:** Matthias Klein  
**Date of birth:** September 18, 1982  
**Place of birth:** Lahnstein, Germany  
**Nationality:** German  
**Gender:** male  
**Address:** [REDACTED] Munich, Germany  
**Phone:** [REDACTED]

## CURRENT STATUS

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**7/2019-today** "Akademischer Rat" (Res. Scientist/Assist. Professor) at LMU Munich  
**Tasks:** Creation and analysis of the largest SZ & X-ray selected cluster catalogs  
Active research within the cosmology & structure formation group at LMU  
Active research within the DES and SPT science collaborations  
**Teaching:** Teaching load of  $\geq 5$  academic hours per week since July 2019,  
supervision & mentoring of Master and PhD students.  
**Collaborations:** DES, SPT-3G, LSST, Euclid, CMB-S4  
Previous collaborations: eROSITA, APEX-SZ

## WORK EXPERIENCE

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**7/2019-now** Research Scientist (Akademischer Rat), LMU Munich  
**12/2014-06/2019** Post-Doc MPE Garching & LMU Munich  
**12/2013-11/2014** Post-Doc in Astronomy, University Bonn  
**09/2009-12/2013** Ph. D. student in Astronomy, University Bonn  
**03/2010-09/2010** Member of the LOC for the AG 2010 Conference in Bonn  
**06/2009-09/2009** Research assistant, Landessternwarte Heidelberg  
Precision photometry and light curve analysis of AGN using remote controlled optical telescopes.  
**11/2007-06/2009** Tutor for high school students, Private Nachhilfeschule, Schriesheim  
**08/2005-06/2007** Research assistant, Landessternwarte Heidelberg  
Data calibration and precision photometry of AGN light curves using optical telescopes (ATOM, WATCHER).

## EDUCATION

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**University:**  
**9/2009-12/2013** Ph. D. student in Astronomy, University Bonn, Argelander Institute for Astronomy  
**Thesis title:** "Weak lensing measurements for the APEX-SZ cluster survey"  
**Supervisors:** Prof. Frank Bertoldi, Prof. Peter Schneider  
  
**4/2003-06/2009** Dipl. Phys., Ruprecht Karls University, Heidelberg  
**Thesis title:** "Optical photometry of PKS 2155-304 at a high state as part of a multiwavelength campaign"  
**Supervisor:** Prof. Stefan Wagner  
  
**School:**  
**8/1995-03/2002** High School "Marion Doenhoff Gymnasium", Lahnstein  
**8/1993-07/1995** Secondary School "Staatl. Realschule und Gymnasium Lahnstein", Lahnstein  
**9/1989-06/1993** Elementary School "Goethe Schule", Lahnstein

## RESEARCH ARCHIEVEMENTS:

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- Contributing to the new SPT cluster cosmology analysis, providing extensions the SPT-SZ cluster sample and confirmation of the SPTpol 500d sample (Klein et al. 2024, Bleem et al. 2024, Bocquet et al. 2024).
- Contribution to the first eROSITA-based cluster cosmology study (Chiu et al. 2023)
- Creation of the largest X-ray selected galaxy cluster catalog to date (Klein et al. 2023).
- Creation of the first optically confirmed eROSITA-based cluster catalog and contribution to over 14 related science papers (Klein et al. 2022).
- Contribution to the SPT-SZ cluster cosmology study (Bocquet et al. 2019)
- Weak lensing study of 42 clusters, using a novel background galaxy selection and including an observational program (7 runs, 51 nights total) at La Silla observatory (Klein et al. 2019b).
- Development of the MCMF algorithm for confirmation of X-ray or SZ-selected galaxy cluster candidates (Klein et al. 2018, Klein et al. 2019a).
- Supported the study on baryon fraction in filaments by contributing WFI weak lensing data (Eckert et al. 2015).

## CO-SUPERVISION:

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<b>ongoing</b>	PhD: D. Hernandez-Lang, A. Singh
<b>2022</b>	Master: S. Pattloch
<b>2021</b>	PhD: M. Paulus, Master: S. Krishna, A. Singh, A. Lottermoser
<b>2019</b>	PhD: S. Grandis, R. Capasso
<b>2018</b>	PhD: N. Gupta, Master: A. Tzelepidis
<b>2017</b>	Master: G. Temple
<b>2016</b>	PhD: I. Chiu
<b>2015</b>	PhD: C. Hennig

## CONTRIBUTION TO ACADEMIC COMMUNITY & PUBLIC OUTREACH:

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<b>contribution:</b>	Development of the MCMF algorithm and public release of >6 ICM-selected cluster catalogs (> 10,000 clusters in total) Key-involvement in early eROSITA data release with > 14 papers building up on MCMF-based cluster catalogs. Member of the LOC of the AG 2010 conference in Bonn
<b>outreach:</b>	Guided tours at the Landessternwarte Heidelberg Contribution to greater public outreach events (e.g. Venus transits, solar eclipse) Public talks at elementary schools & Kindergarten
<b>Social events</b>	I organised several hikes in the Rhine and Ahr valley and organised ski trips to the Sauerland region for people at the Argelander Institute (Bonn)

## INVOLVED IN FOLLOWING PRESS RELEASES:

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<b>2023</b>	<a href="#">Cosmology: On the trail of a mysterious force in space</a>
<b>2021</b>	<a href="#">Astrophysics: An appetizer to the all-sky banquet</a>
<b>2015</b>	<a href="#">Warm-hot baryons comprise 5–10 per cent of filaments in the cosmic web</a>

## CONTRIBUTED TO THE FOLLOWING ACCEPTED OBSERVING PROPOSALS

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<b>Spitzer:</b>	Discovering Massive $z > 1$ Galaxy Clusters with Spitzer and SPTpol
<b>CTIO:</b>	Completing the Southern eROSITA Sky with DECam
<b>GEMINI-S:</b>	Clash of Titans: a dynamical study of a sample of massive galaxy clusters undergoing extreme mergers
<b>Chandra &amp; HST:</b>	Snapshots In The History Of Dissociative Major Mergers.
<b>XMM-Newton:</b>	Multiwavelength scaling relations of galaxy clusters out to $z=0.55$
<b>2.2m MPG/ESO</b>	7 observation runs (51 nights in total), conducted by myself.