

Curriculum Vitae (March 2021): Christian Maier

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Main Research Interests:

- Role of AGNs and (Cluster) Environment on Galaxy Evolution, Conformity and on Quenching
 - Galaxy Formation and Evolution since the Cosmic Dawn and Connection to Dark Matter Haloes
 - Evolution of Star Formation Rates and Metallicities of Galaxies and Connection with Quenching
 - Internal Kinematics, Stellar-to-Halo Mass Relations and Connection with Gas Regulation
 - Gas Consumption; Quenching Timescales and Mechanisms from Comparison with Simulations
 - Evolution of Structural Parameters of Galaxies and Scaling Relations
 - Lyman Alpha Emitters and Primeval Star Formation at High Redshifts ($z > 5$)
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Scientific Activities

94 refereed publications, **h-index 50**

One second-author and 5 first-author publications since September 2014

Referee for several ApJ and MNRAS papers

IAU, OeGAA (Österreichische Gesellschaft für Astronomie und Astrophysik) and EAS member

Local Organizing Committee, “Galaxies in 3D across the universe”, Vienna, Austria, 2014

Teaching Experience:

Lecturer for master students: “Giant Black Holes and Their Host Galaxies”

Lecturer for master students: “Galaxy Evolution”

Supervisor of bachelor and master theses

One master thesis published as Ciocan, Maier et al. (2020, A&A)

Supervisor of astronomical laboratory exercises

Assistant for undergraduate astronomy and physics courses at ETH Zurich

Lecture assistant for Observational Cosmology, Electrodynamics, Quantum Physics at ETH Zurich

Teaching assistant for Observational Cosmology, and undergraduate physics courses at ETH Zurich

Co-supervisor of undergraduate physics students doing a practical course in astronomy

Employment History:

Since Oct 2011	University of Vienna, Department of Astrophysics
Oct 2011 – Sep 2015	University Assistant and Lecturer, University of Vienna, Department of Astrophysics
2007 – 2011	Research Team Leader (“Oberassistent”) & zCOSMOS data manager, ETH Zürich
2003 – 2007	Postdoctoral Researcher, ETH Zürich, Institute for Astronomy
Jan – Sep 2003	Research Associate at MPIA, Member of the Calar Alto Deep Imaging Survey team

Education:

Dec 2002	PhD, Ruprecht Karls University, Heidelberg, <i>Magna Cum Laude</i>
Oct 1999–2002	PhD thesis at Max Planck Institute for Astronomy (MPIA) Heidelberg, with the topic <i>Emission Line Galaxies from CADIS: High Redshift Lyman-Alpha Galaxies and Metal Poor Galaxies at Medium Redshift</i>
1998–1999	Diploma (M.Sc.) in physics, with the topic <i>Near-Infrared Photometry of Quasars with $z > 4$,</i> at Landessternwarte Heidelberg, <i>mark: very good</i>

Languages: Romanian (native), German: fluent, English: fluent,
French: good, Italian: good, Spanish: good

Main International Research Talks Since 2014

- May 2019 “Metals in Galaxies, Near and Far: Looking Ahead”, Lorentz Center, Leiden, Netherlands: *Slow-then-rapid quenching and strangulation of cluster galaxies at $z \sim 0.2$ and $z \sim 1.5$ as traced by enhanced metallicities*
- Dec 2018 “KMOSat5: Star and Galaxy Formation in 3D - Challenges at KMOS 5th Year” , ESO, Germany: *Slow-then-rapid quenching of cluster galaxies as probed by LoCuSS, and by KMOS at $z \sim 1.5$*
- Jul 2017 Invited Talk at “In and Out. What rules the Galaxy Baryon Cycle?”, MIAPP, Garching, Germany: *Metals and Quenching in Galaxies and in Dark Matter Halos*
- Oct 2016 “The galaxy life-cycle: From activity to quiescence, and back, across cosmic times“, Venice, Italy: *Strangulation of cluster galaxies as seen by their chemical enrichment and HI gas content*
- Sep 2015 “In the Footsteps of Galaxies: Tracing the Evolution of Environmental Effects“, Soverato, Italy: *Chemical evolution of star-forming galaxies in Locuss, Clash and Mahalo clusters up to $z \sim 1.6$*
- Sep 2014 “Evolving Galaxies in Evolving Environments“, Bologna, Italy: *The existence and universality of the fundamental metallicity relation of star-forming galaxies in CLASH clusters at $z \sim 0.4$*
- Jul 2014 Highlight talk at the IAU Symposium 309: “Galaxies in 3D across the Universe”, Vienna, Austria: *Oxygen abundances of zCOSMOS galaxies at $z \sim 1.4$ based on five lines and implications for the fundamental metallicity relation*
- May 2014 “Multiwavelength-surveys: Galaxy Formation and Evolution from the early universe to today”, Dubrovnik, Croatia: *COSMOS-CLASH: The existence and universality of the fundamental metallicity relation at $z < 2.5$ and environmental effects*
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Awarded Observational Scientific Programs at the 8m Subaru telescope, Mauna Kea, USA:

- PI of program S14B-001 FMOS at the SUBARU telescope, *Z(M,SFR) at $z > 2$ and the existence of the fundamental metallicity relation*, 3 nights in visitor mode
- PI of program S14A-003 FMOS at the SUBARU telescope, *The mass-metallicity and fundamental metallicity relation at $z > 2$* , one night in visitor mode
- PI of program S09B-013 MOIRCS at the SUBARU telescope, *Chemical evolution: metallicities of vigorously star-forming galaxies at $z \sim 2.3$* , 2.5 nights in visitor mode

Awarded Observational Scientific Programs at the 8m ESO-VLT, Chile:

- PI of program 091.B-0036 SINFONI at the ESO Very Large Telescope (VLT), *The evolution of the mass-metallicity and fundamental metallicity relation from reliable SFRs, masses and metallicities of zCOSMOS galaxies at $z \sim 1.4$* , 15 hours in service mode
- PI of program 085.B-0317 ISAAC at the VLT, *Establishing the role of (group) environment on metallicities of galaxies at $0.5 < z < 0.7$* , 23.5 hours in service mode
- PI of program 084.B-0232 SINFONI at the VLT, *Chemical evolution: metallicities of vigorously star-forming galaxies at $z \sim 2.3$* , 37 hours in service mode
- PI of program 084.B-0312 ISAAC at the VLT, *Establishing the evolutionary status of candidates low-metallicity luminous galaxies at $0.5 < z < 0.9$* , 23.5 hours in service mode
- PI of program 074.B-0122 ISAAC at the VLT, *Chemical evolution: metallicities of vigorously star-forming galaxies at $z \sim 1.4$* , six half-nights nights in visitor mode
- PI of program 68.B-0088 FORS2 at the VLT, *A spectroscopic study of low-metallicity emission line galaxies from CADIS*, two nights in visitor mode

Observing Experience (my visitor mode observations):

- *six half-nights* with VLT-ISAAC (program 074.B-0122), near-infrared spectroscopy and imaging;
- *two nights* with FORS2 at the VLT (program 068.B-0088) using the multi-object spectroscopy MXU mode;
- *two nights* of spectroscopy with DOLORES (Device Optimized for the LOw RESolution) at the Telescopio Nazionale Galileo (TNG) on La Palma;
- *about 30 nights* at the Calar Alto Observatory (Spain), using MOSCA (Multi Object Spectrograph at Calar Alto) at the 3.5 m-telescope, and with CAFOS (Calar Alto Faint Object Spectrograph) at the 2.2 m-telescope;
- *20 nights* with the 1.23 m-telescope in Calar Alto;
- *2.5 nights* with MOIRCS at the SUBARU telescope;
- *3 nights* with FMOS at the SUBARU telescope, Mauna Kea.

Technical Skills

Data analysis packages: Midas, Iraf

Programming: Fortran, Python

Other astronomical software: skycat, ds9, Vmmps, Vipgi, Reflex, LePhare, KUBEVIZ

Data reduction experience:

- near-infrared spectroscopy with VLT: KMOS, SINFONI and ISAAC

- optical multi-object spectroscopy with VLT: VIMOS and FORS2

- multi-object near-infrared spectroscopy with SUBARU: MOIRCS and FMOS

Lectures for Master and Bachelor students given at University of Vienna:

Measurements of star formation rates and masses of galaxies

Synthesis models and the main sequence of galaxies

Luminosity and mass functions

Quenching and the origin of the Schechter function

Environment effects and merging of galaxies

Star formation and mass assembly histories of passive galaxies

Mass- and environmental quenching model of galaxy evolution

History, basic properties and taxonomy of active galactic nuclei (AGNs)

Radiative processes in AGNs: continuum, broad and narrow line regions

Host galaxies of AGNs and connections with the central black holes

Role of AGNs on mass-quenching

AGN feedback: radiative and kinetic mode

Gas-phase metallicities in galaxies

Contact information for my references:

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