Ludwig Böss

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🖥 https://LudwigBoess.github.io   💬 GER, EN, FR, IT

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Education

2020–now *Munich*	**Astrophysics, PhD**, Ludwig-Maximilians-Universität Thesis: Cosmic Rays, Turbulence and Magnetic Fields in Galaxy Clusters. Supervisors: Prof. Dr. Harald Lesch, Dr. habil. Klaus Dolag
2017–2020 *Munich*	**Astrophysics, M.Sc.**, Ludwig-Maximilians-Universität GPA: 4.0 Thesis: Cosmic Rays in Galaxy Clusters - An on-the-fly Fokker-Planck Solver for Open-Gadget3; Supervisor: Dr. habil. Klaus Dolag
2014–2017 *Munich*	**Physik, B.Sc.**, Ludwig-Maximilians-Universität GPA: 2.7 Thesis: Radial Orbit Instability - Analysis of geometry in unperturbed and perturbed systems; Supervisor: Prof. Dr. Andreas Burkert
2011–2014 *Munich*	**Musicology, B.A.**, Ludwig-Maximilians-Universität GPA: 3.0 Thesis: Witold Lutoslawski's Concerto for Orchestra in the context of Socialist Realism; Supervisor: Prof. Dr. Wolfgang Rathert
2011 *Munich*	**Highschool Diploma**, Theodolinden Gymnasium GPA: 3.3 Majors: English and Music

Conferences and Workshops

August 2022	**International Astronomical Union General Assembly**, Busan, *KOR*
July 2021	**MIAPP workshop - High energy phenomena in astrophysics**, Munich, *GER*
July 2021	**ICRC 2021**, online
February 2020	**Hydrosim Meeting 2020**, Munich, *GER*

Computing Time

2022	**C2PAP Computing Grant (PI)**, Galaxy Clusters with Spectral Cosmic Rays *5 Million CPUh*
2020	**GAUSS Large Scale Project (co-I, PI: Dolag)**, COMPASS *50 Million CPUh*

Teaching

2022	**Masters Thesis**, Student: Daniel Karner
	Assisting supervisor
2022	**Astrophysics III**, Lecture: Prof. Harald Lesch
	Teaching Assistant
2021	**Astrophysics II**, Lecture: Prof. Harald Lesch
	Teaching Assistant
2021	**Bachlor Thesis**, Student: Julian Sommer
	Assisting supervisor
2020	**Theoretical Astrophysics**, Seminar: Prof. Harald Lesch
	Teaching Assistant
2020	**Astrophysics I**, Lecture: Prof. Harald Lesch
	Teaching Assistant

Public Outreach

2023	**Café & Kosmos**, Outreach event by ORIGINS/LMU/TUM
	Public Talk
2021	**Entropia**, Podcast
	Interview
2019	**BR Campus Magazin**, TV documentary
	Interview
2019	**Tag der Physik**, Public outreach day of the LMU physics department
	Mentor
2016-2019	**LMU Campus Tag**, Public outreach day of the LMU
	Mentor

Work experience

March 2023–Now
Munich/Garching

Research Unit Manager

Excellence Cluster ORIGINS, Turbulence Connector

Tasks:

> Organisation of monthly collaboration meeting.
> Summary of ongoing projects for scientific outreach.
> PI rights (e.g. steering, visitor invitation)

Jan. 2017–March 2019
Munich/Haar

Working student

attocube Systems AG, Customer Success / Business Intelligence

Process optimisation and data analysis, e.g.:

> Development of an automated customer satisfaction survey (NPS) using SSIS and Python.
> Gathering and evaluating of key data concerning quality assurance, customer satisfaction and R&D.

Publications

2023	**CRESCENDO: An on-the-fly Fokker-Planck Solver for Spectral Cosmic Rays in Cosmological Simulations**, **Böss, L.**, Steinwandel, U., Dolag, K., Lesch, H., MNRAS, 519,1, pp.548-572
in prep.	**Simulating the LOcal Web (SLOW) - *IV*: The Synchrotron Cosmic Web**, **Böss, L.**, Dolag, K., Steinwandel, U., Hernández-Martínez, E., Sorce, J., Aghanim, N.
in prep.	**Simulating the LOcal Web (SLOW) - *V*: γ-Ray Emission in Local Clusters**, **Böss, L.**, Khabibullin, I., Dolag, K., Steinwandel, U., Hernández-Martínez, E., Sorce, J., Aghanim, N.
in prep.	**Galaxy Cluster simulations with a spectral CR model**, **Böss, L.**, Steinwandel, U., Dolag, K.
2022	**Insights on the origin of ORCs from cosmological simulations**, Dolag, K., **Böss, L.**, Koribalski, B., Steinwandel, U., Valentini, M., `arXiv:2208.15003` *Contributions:* Post-processing of the CR component, related figures and chapters in the paper.
2022	**Virgo: Scalable Unsupervised Classification of Cosmological Shock Waves**, Lamparth, M., **Böss, L.**, Steinwandel, U., Dolag, K., `arXiv:2208.06859` *Contributions:* Scientific input, development contribution, all figures in publication.
2022	**On the small scale turbulent dynamo in the intra cluster medium: A comparison to dynamo theory**, Steinwandel, U., **Böss, L.**, Dolag, K., Lesch, H., ApJ, 933, 2, 131 *Contributions:* Analysis tools and scripts. Related test simulations.
in prep.	**Simulating the LOcal Web (SLOW) - *III*: Radio Halos in the Local Universe**, Dolag, K., **Böss, L.**, Sorce, J., Aghanim, N. *Contributions:* Analysis of the Cosmic Ray related results.
2019	**WVTICs - SPH initial conditions for everyone**, Arth, A., Donnert, J, Steinwandel, U., **Böss, L.**, et. al., `arXiv:1907.11250` *Contributions:* Implementation of the artificial bias correction and writing the corresponding section. Rerunning the tests and figures for the paper.

Skills

Languages

German	First language
English	Fluent
French	Conversation skills
Italian	Basic communication skills

Programming skills

Julia ●●●●○	C/C++ ●●●●○	Fortran ●●●○○	Python ●●●○○
SQL ●●●●○	HTML/CSS ●●○○○		