

Garching bei München

Max-Planck-Institut für Astrophysik

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0 Allgemeines

Das Max Planck Institut für Astrophysik ging hervor aus der gleichnamigen Abteilung am Göttinger MPI für Physik. Mit dem Umzug nach München im Jahre 1958 wurde dieses erweitert zum MPI für Physik und Astrophysik mit Heisenberg und Biermann als Direktoren. Die Arbeiten zur theoretischen Astrophysik lieferten grundlegende Erkenntnisse zur Sonnenphysik, Plasmaphysik und Sternstruktur. 1963 wurde als neues Teilinstitut das Institut für extraterrestrische Physik gegründet. 1991 erfolgte die Aufteilung in drei eigenständige Max-Planck-Institute, das MPI für Physik (MPP), das MPI für Astrophysik (MPA) und das MPI für extraterrestrische Physik (MPE). 2008 feierte das MPA sein 50-jähriges Jubiläum. Im Herbst 2009 bekam das MPA die Genehmigung für einen Erweiterungsbau. Ziel war es, in dem neuen Gebäude einen größeren Hörsaal (120 Sitze), die Computer Gruppe, sowie die Verwaltung (MPE/MPA) unterzubringen. Die Räumlichkeiten im Altbau werden von den MPA Wissenschaftler/innen genutzt. Im Sommer 2013 waren alle Umzüge in den Anbau abgeschlossen. Seit Juni 2014 ist das neu renovierte Gästehaus wieder eröffnet worden und wird auch sehr intensiv von MPA und MPE Gästen genutzt. Zugehörig zum Gästehaus wurde 2015 noch ein Gemeinschaftsraum mit Küche fertiggestellt. Auch ein kleines Teleskop auf dem Dach des Instituts wurde installiert. Die wissenschaftliche Ausrichtung des MPA hat ihren Schwerpunkt in theoretischen Studien, allerdings beteiligt sich das Institut auch immer wieder an größeren Beobachtungsprogrammen, unter anderem betreibt es auch eine Station des LOFAR Radioteleskops. Aktuell wird das Institut von vier Direktoren geleitet, in den Bereichen Physikalische Kosmologie (Komatsu), Galaxienentwicklung (Kauffmann), Stellare Astrophysik (de Mink) und Numerische Astrophysik (Springel).

1 Personal und Ausstattung

1.1 Personalstand

Direktoren und Professoren: 4

Prof. Dr. Selma de Mink [2020-], Prof. Dr. Guinevere Kauffmann [2013-], Prof. Dr. Eiichiro Komatsu [2012-](Geschäftsführender Direktor seit 1.1.23), Prof. Dr. Volker Springel [2018-]

ForschungsgruppenleiterInnen/W2 Mitarbeiter: 15

Dr. Fabrizio Arrigoni-Battaia, Dr. Eugene Churazov, Dr. Benedetta Ciardi, Dr. Torsten Enßlin, Dr. Marat Gilfanov, Dr. Max Grönke, Dr. Hans-Thomas Janka, Dr. Stephen Justham, Dr. Thorsten Naab, Dr. Rüdiger Pakmor, Dr. Fabian Schmidt, Dr. Mahdiah Schmidt (wissenschaftliche Koordination), Dr. Sherry Suyu (Max Planck Fellow sowie Associate Professor an der Technischen Universität München (TUM)), Dr. Simona Vegetti, Prof. Dr. Achim Weiss.

Wissenschaftliche Mitarbeiter: 53

Dr. Noemi Anau Montel (seit 04.11.2024), Dr. Eirini Batziou (bis 30.06.2024), Dr. Ivana Babic (01.11.24 bis 31.01.2025), Dr. Tiara Battich (bis 30.09.2024), Dr. Aniket Bhagwat (seit 01.12.2024), Dr. Jan David Burger, Dr. Sergei Bykov (01.02.2024 bis 29.09.2024), Dr. Miha Cernetic, Dr. Seokjun Chang, Dr. Martyna Chruslinska (bis 30.09.2024), Dr. Geza Attila Csörnyei (01.05.2024 bis 31.08.2024), Dr. Patricia Diego Palazuelos, Dr. Caitlin Christine Doughty (seit 01.10.2024), Dr. Adriaan Judocus Duivenvoorden (seit 09.09.2024), Dr. Alankar Dutta (seit 19.08.2024), Dr. Philipp Frank (bis 31.08.2024), Dr. Daniela Galarraga-Espinosa, Dr. Enrico Garaldi (bis 14.01.2024), Dr. Anna Genina, Dr. Robert Glas, Dr. Jayson Gonzalez Lobos (seit 01.12.2024), Dr. Cesar Hernandez Aguayo, Dr. Simon Huber (bis 31.05.2024), Dr. Andrew Spencer Jamieson, Dr. Cole Campbell Johnston (bis 15.11.2024), Dr. Jakub Andrzej Klencki (seit 15.10.2024), Dr. Valeriya Korol, Dr. Ivan Kostyuk (bis 31.03.2024), Dr. Daniel Kresse, Dr. Toshiaki Kurita, Dr. Natalia Anne Maarit Lahen, Dr. Qi Li, Dr. Luisa Lucie Smith (bis 17.11.2023), Dr. Alejandra Daniela Melo Melo, Dr. Iker Millan Irigoyen, Dr. Marta Monelli (01.05.2024 bis 15.10.2024), Dr. Vyoma Muralidhara (06.11.2024 bis 31.01.2025), Dr. Aleksandra Maria Olejak, Dr. Conor O’Riordan, Dr. Bo Peng, Dr. Devon Powell, Dr. Antti Jalmari Rantala, Dr. Taeho Ryu, Dr. Matthew Smith, Dr. Julia Stadler, Dr. Jakob Stegmann, Dr. Rosemary Yvette Talbot, Dr. Stefan Taubenberger (31.05.2024), Dr. Alejandro Vigna Gomez, Dr. Christian Vogl (bis 31.10.2024), Dr. Pavan Vynathaya (01.05.2024 bis 31.08.2024), Dr. Chen Wang, Dr. Maria Chiara Werhahn

Doktoranden: 52

Anshuman Acharya, Silvia Elizabeth Almada Monter, Shaghaiegh Azyzy, Monica Alejandra Barrera Castillo (bis 31.10.2024), Arghyadeep Basu, Teresa Andrea Maria Braun, Benedetta Casavecchia, Safak Celik, Hitesh Kishore Das, Willem de Roo (since 01.09.2024), Vincent Lukas Johannes Eberle, Gordian Victor Arnold Edenhofer (since 30.09.2024), Sebastian Ertl (31.10.2024), Fulvio Ferlito, Aleksandra Grudskaia (bis 30.04.2024), Jana Grupa, Matteo Guardiani, Johannes Harth-Kitzerow (bis 31.01.2024), Jakob Franz Hein, Malte Laurenz Heinlein, Eileen Herwig, Fernando Hidalgo Pineda (since 01.09.2024), Jonathan Aimé Jäger (since 01.07.2024), Gaoxiang Jin, Vishal Johnson, Thibault Lechien (since 01.10.2024), Maja Vanessa Katherina Lujan Niemeyer, Jingze MA, Elias Mamuzic (since 01.11.2024), Alexander Christian Mayer, Marija Minzburg, Jeongin Moon, Ivana Nikolac, Tilman Oelgeschläger (15.09.2024), Christian Partmann (bis 31.10.2024), Silvia Anastasia Popa (since 01.10.2024), Shubham Raghuvanshi, Abinaya Swaruba Rajamuthukumar, Katlego Jafta Ramalatswa, Bryce Alexander Remple, Johannes Maximilian Ringler (bis 29.02.2024), Jelena Malwine Constanze Maria Ritter, Julian Adalbert Christian Rüstig, Sophia Christina Schnauck (since 15.09.2024), Lazaros Souvatzis, Maryam Tajalli, Joanne Tan, Katyayani Trivedi (01.07.2024), Beatriz Tucci Schiewaldt, Ruggero Valli, Akash Darshan Vani, Han Wang, Margret Leonie Westerkamp, Hanieh Zandinejad.

Masterstudenten: 22

Alon Aharoni, Anisha Anisha, Mohammadreza Ashari, Jinhao Cai, Eirini Agapi Chaniotaki, Jennifer Faba Moreno, Sylvia Hofst, Mrinal Kedarnath (bis 14.06.2024), Kristian Tchiorny (bis 30.11.2024), Patrik Kuster, Elias Mamuzic (bis 31.10.2024), Anton Darius Nöbauer, Andreas Popp, Jaemin Ryu, Igor Rzhin, Benedikt Seidl, Ananya Shankar, Fabian Sigler, Moritz Singhartinger, Giovanni Stimamiglio, Ethan Tauro Rydell, Qiang Wang (bis 03.05.2024).

Sekretariat und Verwaltung: 5

Sonja Gründl (bis 30.05.2024, Gabriele Kratschmann, Solvejg Schröder (seit 01.02.2024), Isabel Thapa (bis 30.09.2024), Ana Lomidze (seit 15.10.2024)

Verwaltungsleitung: Pia Fischhaber

Technische Mitarbeiter: 8

Computational Support: Heinz-Ado Arnold (bis 16.05.2024), Goran Toth, Andreas Breithfeld, Andreas Weiss, Gerhardt Werner Grek

Library: Mirna Balicevic, Christiane Bartels (library management)

Public relation: Dr. Hannelore Hämmerle

Gäste: 41

Saleem Zaroubi (University of Groningen, Netherlands) 15.01–01.03, Andrea Cabrioul (INAF/Italy) 17.01–15.05, Valentina Vacca (INAF/Italy) 17.01–15.05, Gissel Pardo Montaguith (University of La Serena, Chile) 11.02–08.05, Andrea Chiavassa (Laboratoire Lagrange/France) 19.02–15.03, Changyun Cho (New York University Abu Dhabi) 03.03–31.03, Gen Chiaki (Tohoku University) 18.03–28.03, Brian Tapia (Chile) 05.04–05.05, Leander Thiele, Dr. (Kavli Institute for the Physics and Mathematics of the Universe (IPMU), Kashiwa, Japan) 01.05–31.05, Julio Navarro (Visitor Prof.) (University of Victoria, Canada) 04.05–30.09, Bruno Martín Celiz (IATE, Córdoba, Argentina) 31.05–26.08, Kandaswamy Subramanian (Inter-University Centre for Astronomy and Astrophysics (IUCAA)) 01.06–31.07, Andrei Beloborodov (Columbia University) 02.06–19.01, Nianyi Chen (Carnegie Mellon University) 02.06–26.07, Biwei Dai (University of California, Berkeley) 02.06–26.07, Natalya Lyskova (Space Research Institute of Russian Academy of Sciences) 07.06–08.07, Valentin Skoutnev (Columbia University, USA) 07.06–30.01, Zachary SZachSSlepian (University of Florida, faculty) 07.06–24.06, Charles ChuckSSteidel (Caltech, USA) 15.06–06.07, Tomomi Sunayama (University of Arizona (soon ASIAA)) 20.06–07.07, Facundo Ariel Gómez (Universidad de la Serena/Chile) 21.06–20.07, Antonela Monachesi (Universidad de la Serena/Chile) 21.06–20.07, Hanifa Teimourian (Erciyes University) 05.07–15.10, Alexander Heger (Monash Centre for Astrophysics) 08.07–07.08, Giovanni Stimamiglio (LMU) 08.07–30.09, Jing Wang (Peking University) 13.07–28.07, Laura Herold (University John Hopkins, Baltimore USA) 22.07–09.08, Paolo Mazzali (Liverpool John Moores University) 28.07–12.10, Elen Pian (Istituto Nazionale di Astrofisica - INFA, Rom) 28.07–12.10, Luc Dessart (CNRS-Sorbonne Université, France) 31.07–31.08, Evgeni Grishin (Monash University, School of Physics and Astronomy) 24.08–08.09, Juma Kamulali (Kyambogo University, Uganda) 15.09–03.12, Benard Nsamba (Kyambogo University, Uganda) 15.09–03.12, Qiang Wang (MAXimize Program, Technical Staff) 15.09–28.02.2025, Ritoli Ghosh (Indian Institute of Science, Bengaluru, India) 07.10–12.11, Andrea Chiavassa (Observatory of Côte d'Azur, Nice, France / Astrophysicist) 21.10–22.11, Alexey/Aliaksei Bobrick (Technion - Israel Institute of Technology, Doktorand) 28.10–15.11, Norbert Langer (Universität Bonn) 04.11–14.12, Laura Sales (University of California, Riverside / Associate Professor) 19.12–02.03.2025.

1.2 Instrumente und Rechenanlagen

Am MPA wurde immer besonderer Wert auf numerische Astrophysik und damit auf das Vorhandensein exzellenter Rechner-Kapazitäten gelegt, auf das die Wissenschaftler sowohl am Institut selbst als auch extern zugreifen können. Zur Zeit besteht das institutseigene Computersystem aus zentralen Linux-basierten Rechner-, Daten- und Netzwerk-Servern. Diese werden von der hauseigenen IT-Gruppe betrieben. Die Nutzer haben freien Zugang zu den zentralen Systemen über Linux-basierte Desktop-PCs oder ihre Laptops und VPN. Die Daten werden ebenfalls zentral auf Fileservern mit einer Gesamtkapazität von mehreren 100 Terabyte verwaltet und über das AFS-Filesystem verteilt. Für alle kritischen Daten wird täglich ein Back-up erstellt. Zusätzlich zu den mehr als 150 voll ausgestatteten Arbeitsplatz-PCs haben die Nutzer Zugang zum zentralen Rechenzentrum des

MPA. Der hauseigene Cluster bietet derzeit mehr als 3000 Kerne. Die gesamte Online-Plattenkapazität am MPA liegt im Petabyte-Bereich, wobei einzelne Nutzer je nach wissenschaftlichem Bedarf über Speicherplatz von wenigen GB bis zu dutzenden TB verfügen. Energieverbrauch und Kühlung sind ein entscheidender Aspekt von IT-Installationen geworden. Das MPA konzentriert sich deshalb auf Hardware mit geringem Stromverbrauch und effiziente, umweltfreundliche Kühlung.

Für außerordentliche Anforderungen haben MPA-Wissenschaftler Zugang zum zentralen Rechenzentrum der Max-Planck Gesellschaft in Garching (MPCDF), das nur wenige hundert Meter entfernt liegt, sowie das nahe Leibniz-Rechenzentrum des Freistaats Bayern (LRZ) und andere deutsche Höchstleistungsrechenzentren (z.B. in Stuttgart und Jülich). Das MPCDF bietet unter anderem hoch-parallele Supercomputer, eine große Zahl an weiteren leistungsfähigen Compute-Clustern, von denen einiger ausschließlich vom MPA genutzt wird, zusammen mit einem Massenspeicher mit einer Gesamtkapazität im multi-Petabyte-Bereich. Diese sind der Freya-Cluster und der Orion-Cluster.

1.3 Gebäude und Bibliothek

Das MPA-Gebäude wurde 1979 von den Architekten Fehling und Gogel im Forschungsgelände Garching, in enger Nachbarschaft zu dem von den gleichen Architekten konzipierten Hauptquartier der Europäischen Südsternwarte (ESO), gebaut. In den folgenden Jahrzehnten wuchs in Garching eines der führenden Wissenschaftszentren Europas heran, und ESO, MPA und MPE bilden heute gemeinsam die größte Zusammenballung exzellenter astrophysikalischer Forschungskapazitäten in Europa. Die Astrobibliothek ist die gemeinsame Bibliothek des MPE und des MPA. Derzeit beherbergt sie eine einzigartige Sammlung von etwa 54.000 Büchern und Zeitschriften, rund 7.300 Berichten und Veröffentlichungen von Observatorien sowie gedruckte Abonnements für 70 gedruckte und etwa 500 elektronische wissenschaftliche Zeitschriften. Darüber hinaus pflegt sie ein Archiv der Veröffentlichungen von MPA und MPE, zwei Diasammlungen (eine für das MPA und eine für das MPE), eine Sammlung von etwa 800 audiovisuellen Medien sowie Kopien des Palomar Observatory Sky Survey (auf fotografischen Abzügen) und des ESO/SERC Sky Survey (auf Film). Der Bibliothekskatalog umfasst Bücher, Konferenzberichte, Periodika und Dissertationen – sowohl in gedruckter Form als auch online.

2 Wissenschaftliche Arbeiten

3 Akademische Abschlussarbeiten

3.1 Bachelorarbeiten

Abgeschlossen: 2

Anna Theresa Neudert: “Introduction and Analysis of a new Concept of Friendship and Group Behavior in the Reputation Game Simulation”, LMU München.

Mohammadmahdi Movahedi Najafabadi: “Optimizing of RAG parameters for Internal Knowledge Management”, LMU München.

3.2 Masterarbeiten

Abgeschlossen: 3

Anton Nöbauer: “Image Reconstruction in 3D Microscopy with Information Field Theory”, LMU München.

Mrinal Jetti: “Spectral Bayesian Imaging of Perseus Cluster in X-ray”, LMU München.

Daniel Muschiol: “Untersuchung der Rekonstruktionsgenauigkeit von Galaxiepositionsdaten aus einem rückwärts optimierten digitalen Hologramm”, Hochschule Ruhr West

3.3 Dissertationen

Abgeschlossen: 7

Aniket Bhagwat: “Connecting stellar feedback in the first galaxies and cosmic reionisation”, Ludwig-Maximilians-Universität München.

Bryce A. Remple: “AGB Evolution and Nucleosynthesis: Understanding the Uncertainties”, Ludwig-Maximilians-Universität München.

Jay Gonzalez Lobos: “Characterizing the extended Lyman- α emission around high-redshift massive galaxies”, Ludwig-Maximilians-Universität München.

Miha Cernetic: “High-Order Discontinuous Galerkin Hydrodynamics for Supersonic Astrophysical Turbulence”, Ludwig-Maximilians-Universität München.

Marta Monelli: “Development of Realistic Simulations for the Polarization of the Cosmic Microwave Background”, Ludwig-Maximilians-Universität München.

Vyoma Muralidhara: “Spectral distortion and polarization of the cosmic microwave background: Measurement, challenges and perspectives”, Ludwig-Maximilians-Universität München.

Ivana Babić: “Field level inference of the Baryon Acoustic Oscillations Scale”, Ludwig-Maximilians-Universität München.

Jakob Roth: “Bayesian Imaging with Ground Based Telescopes”, LMU München.

Gordian Edenhofer: “Resolving our Dusty Neighborhood in the Milky Way”, LMU München.

4 Veröffentlichungen

D. Paoletti, ..., P. D. Palazuelos, E. Komatsu, E. Martinez-Gonzalez, M. Monelli, Y. Zhou, “LiteBIRD science goals and forecasts: primordial magnetic fields,” JOURNAL OF COSMOLOGY AND ASTROPARTICLE PHYSICS (7), 086 (2024).

A. Veledina, ..., E. Churazov, F. Marin, K. Wu, C. Chen, et al., “Cygnus X-3 revealed as a Galactic ultraluminous X-ray source by IXPE,” NATURE ASTRONOMY 8 (8), 1031 (2024).

M. Remazeilles, ..., C. Hernandez-Monteagudo, P. D. Palazuelos, R. G. Gonzalez, E. Komatsu, E. Martinez-Gonzalez, M. Monelli, Y. Zhou, “LiteBIRD science goals and forecasts. Mapping the hot gas in the Universe,” JOURNAL OF COSMOLOGY AND ASTROPARTICLE PHYSICS (12), 026 (2024).

D. A. Neufeld, ..., G. Edenhofer, et al., “The Densities in Diffuse and Translucent Molecular Clouds: Estimates from Observations of C2 and from Three-dimensional Extinction Maps,” ASTROPHYSICAL JOURNAL 973 (2), 143 (2024).

M. Michailidis, ..., A. Bykov, E. Churazov, I. Khabibullin, et al., “Study of X-ray emission from the S147 nebula with SRG/eROSITA: X-ray imaging, spectral characterization, and a multiwavelength picture,” ASTRONOMY & ASTROPHYSICS 689, A277 (2024).

I. I. Khabibullin, E. Churazov, ..., A. M. Bykov, et al., “Study of X-ray emission from the S147 nebula by SRG/eROSITA: Supernova-in-the-cavity scenario,” ASTRONOMY & ASTROPHYSICS 689, A278 (2024).

P. Bergamini, C. Grillo, P. Rosati, ..., G. B. Caminha, and T. Treu, “High-precision strong lensing models of galaxy clusters in the JWST era”, in IAUS 381: Strong gravitational lensing in the era of Big Data, edited by H. Stacey, A. Sonnenfeld, and C. Grillo (Cambridge University Press, Cambridge, UK, 2024), Vol. 381, pp. 71-78.

- G. Angora, P. Rosati, M. Meneghetti, ..., G. Caminha, and E. Vanzella, “Simulating high-realistic galaxy scale strong lensing in galaxy clusters to train deep learning methods”, in *IAUS 381: Strong gravitational lensing in the era of Big Data*, edited by H. Stacey, A. Sonnenfeld, and C. Grillo (Cambridge University Press, Cambridge, UK, 2024), Vol. 381, pp. 85-93.
- C. O’Riordan, “Angular structure and gravitational imaging”, in *IAUS 381: Strong gravitational lensing in the era of Big Data*, edited by H. Stacey, A. Sonnenfeld, and C. Grillo (Cambridge University Press, Cambridge, UK, 2024), Vol. 381, pp. 58-62.
- D. M. Powell, “Lensed radio arcs at milli-arcsecond resolution: Methods, science results, and current status”, in *IAUS 381: Strong gravitational lensing in the era of Big Data*, edited by H. Stacey, A. Sonnenfeld, and C. Grillo (Cambridge University Press, Cambridge, UK, 2024), Vol. 381, pp. 46-51.
- C. Partmann, T. Naab, N. Lahén, ..., E. Churazov, and A. Rantala, “Intermediate mass black hole feedback in dwarf galaxy simulations with a resolved ISM and accurate nuclear stellar dynamics”, in *Black Hole Winds at All Scales (IAU Symposium 378)*, edited by G. Bruni, M. Diaz Trigo, S. Laha, and K. Fukumura (Cambridge University Press, Cambridge, UK, 2023), pp. 68-71.
- A. Maire, ..., J. J. Wang, J. Stadler, et al., “Direct imaging and dynamical mass of a benchmark T-type brown dwarf companion to HD 167665,” *ASTRONOMY & ASTROPHYSICS* 691, A263 (2024).
- S. Schuldt, ..., G. B. Caminha, S. H. Suyu, et al., “Improved model of the Supernova Refsdal cluster MACS J1149.5+2223 thanks to VLT/MUSE,” *ASTRONOMY & ASTROPHYSICS* 689, A42 (2024).
- I. Marini, ..., K. Dolag, et al., “Detecting galaxy groups populating the local Universe in the eROSITA era,” *ASTRONOMY & ASTROPHYSICS* 689, A7 (2024).
- C. T. Davies, ..., B. Li, C. Hernandez-Aguayo, et al., “Constraining modified gravity with weak-lensing peaks,” *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY* 533 (3), 3546-3569 (2024).
- D. Pallero, F. A. Gomez, ..., B. Li, C. Hernandez-Aguayo, et al., “Galaxy evolution in modified gravity simulations: using galaxy properties to constrain our gravitational model,” *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY* 533 (3), 3344-3364 (2024).
- J. M. Pollin, ..., R. Pakmor, et al., “On the fate of the secondary white dwarf in double-degenerate double-detonation Type Ia supernovae - II. 3D synthetic observables,” *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY* 533 (3), 3036-3052 (2024).
- N. Guo, L. Lucie-Smith, H. P. V. A. Pontzen, and D. Piras, “Deep learning insights into non-universality in the halo mass function,” *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY* 532 (4), 4141-4156 (2024).
- D. Lazzati, R. Perna, T. Ryu, and K. Breivik, “Delayed Emission from Luminous Blue Optical Transients in Black Hole Binary Systems,” *ASTROPHYSICAL JOURNAL LETTERS* 972 (1), L17 (2024).
- F. Ferlito, ..., V. Springel, M. Reinecke, S. D. M. White, C. Hernandez-Aguayo, et al., “Ray-tracing versus Born approximation in full-sky weak lensing simulations of the MillenniumTNG project,” *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY* 533 (3), 3209-3221 (2024).

- M. Solimano, J. Gonzalez-Lopez, ..., E. J. Johnston, T. Naab, et al., “The ALMA-CRISTAL survey - Discovery of a 15 kpc-long gas plume in a $z = 4.54$ Lyman- α blob,” *ASTRONOMY & ASTROPHYSICS* 689, A145 (2024).
- L. Ferrari, ..., L. Dessart, P. Mazzali, Y. Cai, T. Chen, et al., “The metamorphosis of the Type Ib SN 2019yvr: late-time interaction,” *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY* 529 (1), L33-L40 (2024).
- K. C. Wong, ..., S. H. Suyu, A. Galan, et al., “TDCOSMO - XVI. Measurement of the Hubble constant from the lensed quasar WGD 2038-4008,” *ASTRONOMY & ASTROPHYSICS* 689, A168 (2024).
- B. Casavecchia, U. Maio, C. Peroux, and B. Ciardi, “COLDSIM predictions of [C II] emission in primordial galaxies,” *ASTRONOMY & ASTROPHYSICS* 689, A106 (2024).
- C. Fotopoulou, T. Naab, N. Lahen, M. Cernetic, ..., U. P. Steinwandel, et al., “The masses, structure, and lifetimes of cold clouds in a high-resolution simulation of a low-metallicity starburst,” *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY* 534 (1), 215-230 (2024).
- P. Vynathaya, T. Ryu, R. Pakmor, S. E. de Mink, and H. B. Perets, “Simulating the tidal disruption of stars by stellar-mass black holes using moving-mesh hydrodynamics,” *ASTRONOMY & ASTROPHYSICS* 685, A45 (2024).
- A. R. H. Stevens, ..., C. Hernandez-Aguayo, et al., “DARK SAGE: Next-generation semi-analytic galaxy evolution with multidimensional structure and minimal free parameters,” *PUBLICATIONS OF THE ASTRONOMICAL SOCIETY OF AUSTRALIA* 41, e053 (2024).
- G. Lucente, M. Heinlein, H. Janka, and A. Mirizzi, “Simple fits for the neutrino luminosities from protoneutron star cooling,” *PHYSICAL REVIEW D* 110 (6), 063023 (2024).
- G. S. Uskov, ..., M. R. Gilfanov, et al., “New Active Galactic Nuclei Detected by the ART-XC and eROSITA Telescopes during the First Five SRG All-Sky X-ray Surveys. Part 2,” *ASTRONOMY LETTERS-A JOURNAL OF ASTRONOMY AND SPACE ASTROPHYSICS* 50 (5), 279-301 (2024).
- D. A. Zyuzin, A. V. Karpova, Y. A. Shibano, and M. Gilfanov, “4FGL J2054.2+6904: A Binary “Redback“ Pulsar,” *SI* 69 (5), 1479-1481 (2024).
- M. M. Lee, ..., T. Naab, et al., “High dust content of a quiescent galaxy at $z \sim 2$ revealed by deep ALMA observation,” *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY* 527 (4), 9529-9547 (2024).
- S. Ilc, D. Fabjan, E. Rasia, S. Borgani, and K. Dolag, “Properties of the diffuse gas component in filaments detected in the Dianoga cosmological simulations,” *ASTRONOMY & ASTROPHYSICS* 690, A32 (2024).
- H. Wang, R. Canameras, S. H. Suyu, A. Galan, ..., G. B. Caminha, et al., “Strong-lensing and kinematic analysis of CASSOWARY 31: Can strong lensing constrain the masses of multi-plane lenses?,” *ASTRONOMY & ASTROPHYSICS* 690, A1 (2024).
- T. J. O’Neill, C. Zucker, A. A. Goodman, and G. Edenhofer, “The Local Bubble Is a Local Chimney: A New Model from 3D Dust Mapping,” *ASTROPHYSICAL JOURNAL* 973 (2), 136 (2024).
- A. Herle, C. M. O’Riordan, and S. Vegetti, “Selection functions of strong lens finding neural networks,” *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY* 534 (2), 1093-1106 (2024).

- A. Genina, V. Springel, and A. Rantala, “A calibrated model for N-body dynamical friction acting on supermassive black holes,” MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 534 (1), 957-977 (2024).
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5 Lehrtaetigkeit und Gremientaetigkeit

5.1 Lehrtaetigkeiten: Vorlesungen

T. Enßlin, SS 2024 and WS2024/2025, LMU München:

- Information Field Theory (lecture)
- Signal Processing with Python
- Seminar on Information Field Theory

J. Grupa, WS 2023/24 and SS 2024, TUM, München:

- Gravitational Lensing (tutorial)
- Extragalactic Astrophysics (tutorial and substitute for two lectures)

H.-Th. Janka, WS 2023/2024 and SS 2024, TUM, München:

- Measurable Signals from Collapsing and Exploding Stars
- Introduction to Theoretical Astrophysics

A. Melo, FOPRA 86, TUM, München

A. Rantala, “MPA Lecture Series on Computational Astrophysics”, 4 lectures in November 2024, topic: latest advanced N-body simulation techniques

J. Stadler: MPA staff lecture, Techniques for sampling and inference

S. H. Suyu, WS 2023/2024 and SS 2024, TUM, München:

- Experimental Physics 1 in English
- Gravitational Lensing
- FOPRA Experiment 85: Colour-Magnitude Diagrams of Star Clusters: Determining Their Relative Ages

A. Weiss, SS 2024, LMU, Munich: Stars - Theory and Applications

A. Weiss, WS 2023/2024, SS 2024, WS 2024/2025: Seminar on Stellar Astrophysics

5.2 Gremientaetigkeit

F. Arrigoni Battaia:

- External reviewer for ALMA Large Programmes
- Reviewer for FONDECYT (Chile) applications

E. Churazov:

- Member of IAU
- Vice-chair of COSPAR Commission E

B. Ciardi:

- member of the International Astrostatistics Association
- member of the International Astronomical Union (IAU)
- vice-president of the IAU J2 Organizing Committee
- vice-chair of the German LONG Wavelength Consortium (GLOW)
- member of the IAU J2 Organizing Committee
- member of the GLOW Consortium Resource Allocation Committee
- member of the GLOW Executive Committee

S.E. de Mink: ERC Panel

P. Diego-Palazuelos:

- Member of the Speaker Selection Committee of the LiteBIRD Collaboration
- Member of the European Astronomical Society (EAS)
- Member of the Spanish Astronomical Society (SEA)

- Member of the European Consortium for Astroparticle Theory (EuCAPT)

T. A. Enßlin:

- Editorial Board Member of the Journal for Cosmology and Astroparticle Physics
- Editorial Board Member of the Journal Entropy
- Member of DLR Review Board for “Verbundforschung”

M. Gilfanov:

- member of IAU
- associate of COSPAR (Commission E)
- Member of the Editorial Board of Journal of Cosmology and Astroparticle Physics
- Member of the Editorial Board of Journal of Experimental and Theoretical Physics Letters (JETP Letters)
- Member of the Editorial Board of Astronomy Letters

H.-Th. Janka:

- Member of the Germany Astronomical Society
- Member of Germany Physical Society
- Member of International Astronomical Union
- Member of European Astronomical Society

S. Justham:

- Member of the International Astronomical Union
- Member of the Institute of Physics (UK)

E. Komatsu:

- Astronomische Gesellschaft (AG)
- The American Astronomical Society (AAS)
- The American Physical Society (APS)
- The Astronomical Society of Japan (ASJ)
- The Physical Society of Japan
- RIKEN Committee, Ministry of Education, Culture, Sports, Science and Technology of Japan
- Scientific Advisory Committee of Leung Center for Cosmology and Particle Astrophysics, Taiwan
- Selection Committee for the Shaw Prize
- ArXiv Scientific Advisory Council

N. Lahén:

- Junior Member of the International Astronomical Union
- Member of the European Astronomical Society
- Member of the Finnish Astronomical Society

I. Millan Irigoyen:

- Member of Spanish Astronomical Society
- Member of European Astronomical Society

T. Naab: Editor of Living Reviews in Computational Astrophysics

A. Rantala:

- Member of the European Astronomical Society
- Member of the LISA Astrophysics Working Group

F. Schmidt:

- Coordinator of Origins Connector 4
- Member of Origins Research Board
- Member of the DPG board

M. Smith:

- Fellow of the Royal Astronomical Society (UK)
- Member of the Institute of Physics (UK)

V. Springel:

- Vice President of the German Astronomical Society
- Member of the International Astronomical Union
- Member of the European Astronomical Society
- Member of the Research Board of the ORIGINS Cluster of Excellence

- Board of Trustees, Welt der Physik
 - Member of the Scientific Advisory Board of the Max Planck Computing and Data Facility
 - Board of Trustees, MIP.labor, Berlin
 - Scientific Advisory Board of the Zentrum für Astronomie (ZAH), Heidelberg University
- S. H. Suyu:
- member of telescope time allocation committee
 - reviewer for funding agencies
- A. Vani: Member of: PhDNet social media work-group

5.3 Kolloquiumsvorträge

- A. Acharya: University of Cambridge 21-cm Cosmology meeting, “Detecting the Epoch of Reionization 21-cm Signal Power Spectrum”, online, 14.11.24.
- A. Acharya: SKA India 21-cm CD/EoR Bi-weekly Meeting, “Detecting the Epoch of Reionization 21-cm Signal”, online, 4.3.24.
- F. Arrigoni Battaia: Academia Sinica, Institute of Astronomy and Astrophysics (Taipei, Taiwan, 15.04)
- F. Arrigoni Battaia: Joint Astronomical Colloquium, ESO (Garching, Germany, 11.07)
- A. Basu: Lunch Talk (University of Nottingham, UK) – (invited talk) “Impacts of Non-stellar Sources on IGM: Interpretation of Lyman- α forest observations”
- A. Basu: Hi-res Meeting (IFPU, Trieste, Italy) – (invited talk) “Galaxies and IGM”
- A. Basu: IFPU Lunch Talk (Trieste, Italy) – (invited talk) “Impacts of Non-stellar Sources on IGM: Interpretation of Lyman- α forest observations”
- A. Basu: SKA India 21-cm CD/EoR Bi-weekly Meeting (Online) – (invited talk) “Decoding Reionization: Unraveling Impacts of Ionizing Sources through Cosmological RT Simulations”
- A. Basu: GRASCO Seminar Series (IIT Kharagpur, India) – (invited talk) “Decoding Reionization: Unraveling Impacts of Ionizing Sources through Cosmological RT Simulations”
- S. Chon: CFCA users meeting, Japan, NAOJ, 25th, November, 2024
- S. Chon: Cosmic Dawn Revealed by JWST: The Physics of the First Stars, Galaxies, and Black Holes (firstbillion-c24), “Transition of IMF in the Early universe”, Kavli Institute for Theoretical Physics, 26th – 28th, August, 2024
- S. Chon: 2024 Alpbach workshop on clouds, star clusters & black holes, “Massive seed black hole formation in the early metal-enriched universe”, Alpbach, Austria, 10th -14th, June, 2024
- S. Chon: Formation, Evolution and Signatures of Supermassive Stars, “Formation of massive seed BHs in the metal-enriched universe”, Geneva Observatory, Switzerland, 10th – 12th, January, 2024
- E. Churazov: University of Alabama (Huntsville, USA, 28.03)
- B. Ciardi: Observatory of Trieste (Trieste, Italy, 27.11.)
- H.K. Das: Physics Department, Indian Institute for Science (Bangalore, India, Jan 27)
- H.K. Das: Cosmology section meeting, Leibnitz Institute for Astrophysics (Potsdam, Germany, May 8)
- H.K. Das: GalRead, Princeton University (Princeton, NJ, USA, Aug 16)
- H.K. Das: Computational Structure and Galaxy Formation Group meeting (Kavli Inst. for Astrophysics, MIT, Aug 19)
- H.K. Das: Lars Hernquist Group meeting, (Harvard University, CfA, USA, Aug 23)
- S.E. de Mink: Main institute colloquium, CalTech, Pasadena Ca, (15.5)
- S.E. de Mink: Seminar, astro department, UCB, Berkeley, California (20.5)
- S.E. de Mink: Rosenbaum Lecture, Physics dep. Hebrew University, Israel (26.6.)
- S.E. de Mink: Astrophysics Colloquium, Tel Aviv University, Israel (27.6.)
- S.E. de Mink: Astrophysics Colloquium, Duisberg University, Germany (5.6.)
- P. Diego-Palazuelos: High Energy Accelerator Research Organization (Tsukuba, Japan, 16.10.2024)
- P. Diego-Palazuelos: Kavli Institute for the Physics and Mathematics of the Universe (Ka-

shiwano, Japan, 08.10.2024)

P. Diego-Palazuelos: Research Center for the Early Universe (Tokyo, Japan, 03.10.2024)

A. J. Duivenvoorden: Measuring galaxy cluster temperatures and delensing for primordial non-Gaussianity (University of Geneva, Switzerland, 28-11-2024)

T. Enßlin: Max-Planck-Institut für Plasmaphysik (Garching, 20.8.2024)

T. Enßlin: Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR, Bonn, 8.11.2024)

T. Enßlin: Faculty of Astrophysics, University Vienna (Vienna, Austria, 5.11.2024)

T. Enßlin: Faculty of Psychology, University Vienna (Vienna, Austria, 7.11.2024)

A. Genina: Kapteyn Astronomical Institute, (Groningen, Netherlands, 01.10)

M. Gronke: several colloquium talks at various locations, including Caltech, UCSD, CfA, ISTA (Vienna), AIP (Potsdam) and ARI (Heidelberg)

F. Hidalgo Pineda: ARI guest talk

H.-Th. Janka: Stanford University (Stanford, California, USA, 08.05.)

G. Jin: Nanjing University, (Nanjing, China, 26.8.)

G. Jin: University of Science and Technology of China, (Hefei, China, 27.8.)

E. Komatsu: Okayama University (Okayama, Japan, 31.1.)

E. Komatsu: University of Cambridge (Cambridge, UK, 11.3.)

E. Komatsu: University of Portsmouth (Portsmouth, UK, 14.3.)

E. Komatsu: Liverpool John Moores University (Liverpool, UK, 10.4.)

E. Komatsu: University of Nottingham (Nottingham, UK, 12.4.)

E. Komatsu: Universität Heidelberg (Heidelberg, Germany, 18.7.)

E. Komatsu: ISAS/JAXA (Sagamihara, Japan, 5.9.)

E. Komatsu: KEK (Tsukuba, Japan, 20.9.)

N. Lahén: Invited talk, “The life cycle of star clusters in low-metallicity dwarf galaxies” in TOSCA - Topical Overview on Star Cluster Astrophysics, Siena, Italy, 28-31 October

N. Lahén: Invited talk, “Simulating star cluster formation in low-metallicity dwarf galaxies with feedback from single stars”, Cosmic Threads: Interlinking the Stellar Initial Mass Function from Star-birth to Galaxies, Sexten, Italy, 11-15 March

T. Naab: The formation and evolution of star clusters, 02.10.2024, Trieste, Italy

C. O’Riordan: ORIGINS Strong Lensing Day (organiser)

A. Olejak: Paris, France; [Seminar] The origin of compact object mergers. Seminar for high energy, group of the Institut d’Astrophysique de Paris, December 2024

A. Olejak: Warsaw, Poland; [Seminar] Fingerprints of binary star interactions in the parameters of binary black hole mergers - department seminar at Warsaw Astronomical Observatory, March 2024

R. Pakmor: Leiden University (Leiden, Netherlands, 29.4.)

R. Pakmor: Universität Zürich (Zürich, Switzerland, 24.5.)

A. Rantala: ITA Heidelberg, 16.4

A. Rantala: MPIA Heidelberg, 18.4

A. Rantala: DAMTP Cambridge, 21.5

A. Rantala: KICC Cambridge, 22.5

J. Roth, Max Planck Institute for Radio Astronomy, Special Colloquium, October 2024, Bonn

J. Roth, Ludwig Maximilian University, Garching Maier-Leibnitz-Kolloquium, June 2024, Garching

J. Roth, Max Planck Institute for Physics, Bayes Forum, March 2024, Garching

F. Schmidt: DICEP, Donostia, Spain, 31.1.24

F. Schmidt: DAMTP, Cambridge, UK, 12.2.24

F. Schmidt: IFPU, Trieste, Italy, 27.6.24

V. Springel: University of Regensburg (Regensburg, Germany, 17.1.)

V. Springel: Ludwig Maximilian University of Munich (Munich, Germany, 17.1.)

V. Springel: University of Wisconsin (Madison, New York, USA, 13.3.)

V. Springel: Center for Computational Astrophysics (New York, USA, 14.6.)

V. Springel: Heidelberg Institute for Theoretical Studies (Heidelberg, Germany, 24.6.)

V. Springel: University of Bielefeld (Bielefeld, Germany, 18.11.)

J. Stadler: Perturbative Forward Modeling of Galaxy Surveys for Field-Level Analysis and Beyond, Main Colloquium at the MPIfR, Bonn
 J. Stadler: Forward modeling the cosmic Large-Scale Structure, Bayesian Inference and Artificial Intelligence Seminar, LMU Seminar
 S. H. Suyu: Villanova University, (Villanova, PA, USA, 12.4.2024)
 S. H. Suyu: Academia Sinica Institute of Astronomy and Astrophysics, (Taipei, Taiwan, 11.9.2024)
 S. H. Suyu: National Sun Yat-sen University, (Kaohsiung, Taiwan, 12.9.2024)
 S. H. Suyu: University of Vienna, (Vienna, Austria, 11.11.2024)
 S. H. Suyu: Taipei Medical University, (Taipei, Taiwan, 30.12.2024)
 R. Valli: Workshop on stable mass transfer, CCA (11-13 March, New York City)
 R. Valli: Towards a Physical Understanding of Tidal Disruption Events, KITP (29 April-17 May, Santa Barbara)
 S. Vegetti: MIT, Physics Colloquium, (Cambridge, MA, USA, 9.0.5.2024)
 A. Vigna-Gomez: Astrophysics Seminar, University of Birmingham
 A. Vigna-Gomez: AEI Seminar, AEI Postdam
 A. Vigna-Gomez: DTU Seminar, DTU Space
 C. Wang: Nanjing University, (Nanjing, China, 30.07.2024)
 M. Werhahn: Institute Seminar Hamburger Sternwarte (University of Hamburg), Hamburg, Germany, Jan. 2024

5.4 Eingeladener Vorträge

F. Arrigoni Battaia: Co-evolution of galactic eco-systems and their large-scale environments (Hangzhou, China, 8.-12.4.)
 F. Arrigoni Battaia: Where the CircumGalactic medium meets the galaxy environment (IFPU Trieste, Italy, 10.-14.06)
 F. Arrigoni Battaia: What Matter(s) Around Galaxies 2024 (Varenna, Italy, 17.-21.06)
 F. Arrigoni Battaia: Galaxies and diffuse gas in large-scale overdense environments at high redshift (Sexten, Italy, 15.-19.07)
 S. Azyzy: Parity Violation from Home 2024 (Online, 19. - 22.11.2024)
 E. Churazov: Baryons in the Universe 2024, (Kavli IPMU, Kashiwa, Japan, 8-12.04)
 E. Churazov: European Astronomical Society Annual Meeting, (Padova 1-5.07)
 B. Ciardi: i2i: back again to linking galaxy physics from ISM to IGM scales (Sexten, Italy, 15.-19.1.)
 B. Ciardi: Cosmic Dawn at High Latitudes (Stockholm, Sweden, 24.-28.6.)
 B. Ciardi: Cosmic Dawn revealed by JWST: The Physics of the First Stars, Galaxies, and Black Holes (Santa Barbara, USA, 26.-29.8.)
 B. Ciardi: Beyond the Edge of the Universe: latest results from the deepest astronomical survey (Sintra, Portugal, 21.-25.10.)
 B. Ciardi: Unveiling the physics of early galaxy and black hole formation with JWST (Paris, France, 2.-6.12.)
 P. Diego-Palazuelos: CMB-CAL 2024, (Milan, Italy, 04.-08.11.2024)
 P. Diego-Palazuelos: Cosmoglob 2024, Commander4+HFI reanalysis kick-off meeting, (Oslo, Norway, 16.-18.09.2024)
 P. Diego-Palazuelos: Focus Week Program on “Parity violation through CMB observations”, (Trieste, Italy, 27.-31.05.2024)
 A. J. Duivenvoorden: Cosmology from the small-scale CMB with the Atacama Cosmology Telescope (COSMO’24, Kyoto, Japan, 25-10-2024)
 A. J. Duivenvoorden: Calibration strategy for the Atacama Cosmology Telescope (CMB-CAL, Milan, Italy, 04-11-2024)
 T. Enßlin: SIAM Conference on Uncertainty Quantification (Trieste, Italy, 27.2-1.3.2024)
 T. Enßlin: European Astronomical Society Annual Meeting (Padua, 1.7.-5.7.2024)
 T. Enßlin: 15th International Symposium for Space Simulations (ISSS-15) & 6th International Workshop on the Interrelationship between Plasma Experiments in the Laboratory

and in Space (IPELS-16) (Garching, 5-9.8.2024)

T. Enßlin: New Computational Methods in Milky Way Dynamics and Structure (Ringberg Castle, 14.7.-17.7.2024)

M. Gilfanov: Alpbach workshop on clouds, star clusters & black holes (Alpbach, Austria, 10-14.06.)

M. Gilfanov: Seventeenth Marcel Grossmann Meeting (MG17) (Pescara, Italy, 7-12.07.)

M. Gilfanov: 45th COSPAR Scientific Assembly (Busan, South Korea, 13 – 21.07.)

M. Gilfanov: 45th International School for Young Astronomers (Algeria, 15.09.-5.10.)

M. Gilfanov: High Energy Astrophysics and Cosmology in the era of all-sky surveys (Yerevan, Armenia, 7-11.10.)

M. Gronke: KITP Santa Barbara, Turbulence in the Universe

M. Guardiani: ELT First-light Workshop, “Universal Bayesian Imaging with J-UBIK”, (Vienna, Austria, 27.11.24)

H.-Th. Janka: Neutrino Frontiers (Florence, Italy, 25.06.-19.07.)

H.-Th. Janka: Multi-Messenger Astrophysics 2024 (Görlitz, Germany, 26.07.-27.07.)

H.-Th. Janka: Towards the Detection of Diffuse Supernova Neutrinos: What will we see? What can we learn? (Mainz, Germany, 16.09.-20.09.)

H.-Th. Janka: Transients Down Under (Melbourne, Australia, 29.01.-02.02.)

H.-Th. Janka: EAS Annual Meeting: Supernovae: now in 3D! (Padova, Italy, 01.07.-05.07.)

H.-Th. Janka: Cosmic Transients in the Era of Large Surveys (Stockholm, Sweden, 13.06.-14.06.)

S. Justham: “Consequences of stellar interactions for the diversity of SN progenitors” in “The Progenitors of Supernovae and their Explosions” (Dali, China, August 25-31, 2024)

E. Komatsu: IFPU Focus Week: Parity Violation through CMB Observations (Trieste, Italy, 27.-31.5.)

D. Kresse: MITP topical workshop “Towards the Detection of Diffuse Supernova Neutrinos: What will we see? What can we learn?”, (Mainz, Germany, 16.09.-20.09.2024)

T. Kurita: Parity Violation from Home “Probing the primordial parity violation with intrinsic galaxy/halo shapes”, (Online, 19.-22.11.2024)

J.-Z. Ma: Workshop “Horizons for Optical Long Baseline Interferometry”, (Paris Observatory, France, 01.2025)

T. Naab: Modelling MeerKats (Stellebosch, South Africa, 26.02.-28.02.2024)

T. Naab: Alpbach workshop on clouds, star clusters & black holes, 10.06. - 14.06.2024, Alpbach, Austria

T. Naab: IoA 50, 22.06.-26.06.2024, Cambridge, UK

C. O’Riordan: International Astronautical Congress, Milan, Italy, Oct 2024.

C. O’Riordan: Euclid UK Annual Meeting, RAS, London, UK, Dec 2024.

A. Olejak: Leiden, Netherlands; [Invited talk] The origin of compact object mergers. Isolated binary formation scenarios. during conference: Challenges and future perspectives in gravitational-wave astronomy: O4 and beyond., October 2024

A. Olejak: Birmingham, UK; [Invited Panelist] Panel Discussion - Binary Formation Channels during Gravitational Wave Physics and Astronomy Workshop GWPAW 2024, May 2024

R. Pakmor: Towards exascale-ready astrophysics, Jülich (virtual), 25.9. - 27.9.

R. Pakmor: Annual meeting of the German Astronomical Society (Köln, 9.9. - 13.9.)

R. Pakmor: Decade of Discovery: Celebrating 10 Years of the Illustris Project in Tuscany (Gorganza, Italy, 27.10. - 1.11.)

D. Powel: “Dark matter constraints from strong gravitational lensing of extended sources”, Syncretism, Rethymno, Crete, Greece, June 2024

D. Powell: “Tutorial: Modeling strong gravitational lenses from radio interferometric observations”, Workshop on strong gravitational lensing beyond the main lens, Montpellier, France, May 2024

F. Schmidt: BCCP Split Conference (Split, Croatia, July 2024)

F. Schmidt: KIAS Workshop on Large Scale Structure (Gyeongju, Korea, Oct 2024)

F. Schmidt: Separate universe workshop KEK (Tsukuba, Japan, Nov 2024)

F. Schmidt: Yukawa Institute Molecule Workshop (Kyoto, Japan, Nov 2024)
M. Smith: Invited review talk “Modelling Stellar Feedback: Future Challenges and Opportunities” at “Building Galaxies From Scratch” (Vienna, Austria, 19-23.02.24)
M. Smith: Invited talk at “The Feedback-Driven Matter Cycle in Galaxies: new perspectives from JWST” (Hengstberger Symposium, Heidelberg, Germany, 2-7.6.24)
M. Smith: Invited talk at “The Alpbach workshop on clouds, star clusters and blackholes 2024” (Alpbach, Austria, 10-14.6.24)
V. Springel: Simulations of Cosmic Structure Formation: Physical and Computational Challenges (Ringberg, Germany, 3.-5.4.)
V. Springel: Large- and small-scale environmental impacts on galaxy formation revealed by hydrodynamical simulations (Hangzhou, China, 9.-11.4.)
V. Springel: High-Performance Computing (Potsdam, Germany, 29.-30.4.)
V. Springel: Exploring cosmic structure formation with hydrodynamical simulations: Past, present, and future (Cambridge, USA, 9.-10.5.)
V. Springel: Next generation galaxy formation simulations: challenges and opportunities (Cambridge, UK, 21.-26.7.)
V. Springel: The promise of next generation hydrodynamic cosmological simulations (New York, USA, 19.-20.9.)
V. Springel: The promise of next generation hydrodynamic cosmological simulations (Jülich, Germany, 25.-27.9.)
V. Springel: The MillenniumTNG Simulations: Interfacing galaxy formation with precision cosmology (Ringberg, Germany, 21.-25.10.)
V. Springel: Towards new science opportunities with new codes: updates on Arepo-2 (Garganza, Italy, 28.10.-1.11.)
V. Springel: Challenges and opportunities for the next generation galaxy formation simulations (Puerto Varas, Chile, 9.-13.12.)
J. Stadler: Perturbative Forward-Modeling of Large-Scale Structure for Field-Level Analysis and Beyond, Theoretical Modeling of the Large-Scale Structure of the Universe, Workshop at The Higgs Centre for Theoretical Physics, Edinburgh, UK
S. H. Suyu: Cosmology in the Alps 2024, “Strong Lensing as a Probe of Cosmology”, (Les Diablerets, Switzerland, 18.-22.03.2024) (invited talk)
S. H. Suyu: 21st Century Cosmology: Tensions, Anomalies & New Physics, “Strongly lensed transients as a probe of cosmology”, (Ashoka University, India, 21.-23.08.2024) (invited plenary talk given remotely)
S. H. Suyu: The Role of SN Ia in Current Cosmological Tensions, “Cosmology with Gravitational Lens Time Delays”, (Barcelona, Spain, 1.-4.10.2024) (invited talk)
S. Vegetti: EVN symposium (Bonn, Germany, 2-6.9.2024)
S. Vegetti: Cosmic Magnetism in the Pre-SKA Era (Kagoshima, Japan, 27-31.05.2024)
S. Vegetti: Cosmic Signals of Dark Matter Physics: New Synergies (Santa Barbara, CA, USA, 3-7.06.2024)
S. Vegetti: Radio 2024 Symposium (Erlangen, Germany, 12-15.9.2024)
A. Vigna-Gomez: Black Hole Day, MPE
C. Wang: 2024 Alpbach workshop on clouds, star clusters and black holes “Exploring star formation and evolution: lessons from young open clusters” (Alpbach, Austria 10.-14.06.2024)- (invited talk)
M. Werhahn: “Breakthroughs in Galaxy Formation” Ringberg Castle, Germany, Oct. 2024, invited talk

5.5 Öffentliche Vorträge:

A. Acharya: Interviewed for Youtube channel, “Vidped: Voice of the Young”. (August 2024)
A. Acharya: Delivered an invited lecture on “Cosmological Simulations & Structure formation” organised by the Astronomy Club of Chandigarh University. (February 2024)
S.E. de Mink: Munich Public Observatory (8. 3.)
T. Enßlin: talk for about 30 teachers on at Lehrerfortbildungsakademie Dillingen (Donau,

18.-20.8.2024)

T. Enßlin: Deutsches Museum Munich (18.12.2024)

H.-Th. Janka: Physikalischer Verein, Frankfurt (05.06.)

H.-Th. Janka: Haus der Astronomie, Heidelberg, ASTRO & Co, live online talk show, 26.02.

J.-Z. Ma: Three invited talks about stellar astrophysics at X-Institute winter/summer school for high school students (Shenzhen, China, 01.2024, 07.2024)

J.-Z. Ma: One-hour podcast with X-Institute mentors about astronomy research (Shenzhen, China, 04.2024)

V. Springel: Speaker at the Tag der offenen Tür MPA, Garching (3.10.)

J. Stadler: Cafe & Kosmos

J. Stadler: Bundesweite Lehrerfortbildung Astronomie, Jena, Talk

J. Stadler: Tag der Offenen Tür, Talk

Prof. Dr. Eiichiro Komatsu (Geschäftsführender Direktor)