

Garching

Max-Planck-Institut für extraterrestrische Physik

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1 Einleitung

Das Max-Planck-Institut für extraterrestrische Physik (MPE) befasste sich 2018 mit grundlegenden Themen der Astrophysik, die sich folgenden großen Wissenschaftsbereichen zuordnen lassen: (i) *Astrochemie, Gas und Staubprozesse im Interstellaren Medium*, (ii) *Entstehung von Sternen und Planetensystemen*, (iii) *Kompakte Objekte*, (iv) *Galaktisches Zentrum*, (v) *Aktive Galaxien*, (vi) *Galaxienentstehung und -entwicklung*, (vii) *Galaxienhaufen und Großräumige Struktur*, (viii) *Kosmologie und Dunkle Energie*.

Die wissenschaftlichen Aktivitäten am MPE sind organisatorisch in vier große Arbeitsbereiche aufgeteilt, die jeweils von einem Direktor geleitet werden: (1) Infrarot- und Submm/mm Astronomie (Prof. Dr. Reinhard Genzel), (2) Optische und Interpretative Astronomie (Prof. Dr. Ralf Bender), (3) Hochenergieastrophysik (Prof. Dr. Kirpal Nandra) und (4) Zentrum für Astrochemische Studien (Prof. Dr. Paola Caselli). Diese vier Arbeitsbereiche, sowie noch zusätzlich zwei unabhängige Forschungsgruppen, beschäftigen sich – oft bereichsübergreifend – mit unseren acht großen Forschungsthemen.

Dabei werden überwiegend experimentelle Methoden angewandt, aber auch theoretische Untersuchungen durchgeführt. Der Name des Instituts bezieht sich einerseits auf den Gegenstand der Forschung: die Physik des Weltraums, andererseits auf die Forschungsmethoden: viele unserer Experimente werden notwendigerweise oberhalb der dichten, absorbierenden Erdatmosphäre mit Flugzeugen, Satelliten und Raumsonden durchgeführt. In zunehmendem Maße setzen wir aber, vor allem im optischen, im Infrarotbereich und in der Astrochemie, auch Instrumente an erdgebundenen Teleskopen ein.

Methodisch lassen sich die Forschungsaktivitäten des MPE in mehrere Bereiche einteilen. In der beobachtenden Astrophysik werden am MPE innovative Instrumente vollständig oder zum Teil gebaut. Damit wird die Strahlung entfernter Objekte in den Millimeter/Submillimeter-, Infrarot-, Optischen-, Röntgen- und Gammabereich gemessen. Der hierbei überdeckte Teil des elektromagnetischen Spektrums umfasst mehr als zwölf Dekaden. Die untersuchten Objekte reichen von nahen Kometen bis zu den fernsten Quasaren, von winzigen Neutronensternen bis zu Galaxienhaufen, den größten bekannten Formationen im Kosmos. Theoretische Arbeiten liefern die Grundlagen zum Verständnis und Interpretation der Beobachtungen und Messungen. Die direkte Wechselwirkung von Beobachtern, Experimentatoren und Theoretikern im Hause ist ein Merkmal unseres Arbeitsstils und führt oft im direkten Wechselspiel von Hypothesen und Beobachtungstatsachen zu einem frühen Erkennen von Zusammenhängen und damit zu einer frühzeitigen Identifikation vielversprechender neuer Forschungsrichtungen. Ergänzt werden unsere Forschungsaktivitäten durch

Experimente im Labor, mit denen sowohl die aus Theorie und Beobachtungen gewonnenen Ergebnisse überprüft als auch Informationen und Erkenntnisse gewonnen werden, die wiederum in theoretische Modelle und die Dateninterpretation einfließen.

Eine externe technologische Einrichtung des MPE ist von besonderer Bedeutung: Die 130 m lange Vakuumanlage *Panther* zum Test von Röntgenteleskopen in Neuried bei München. Fast alle röntgenastronomischen Experimente oder Teile davon wurden in dieser Anlage getestet. Unter anderem durch diese Einrichtung findet ein Transfer von neuen Verfahren und Methoden in die industrielle Anwendung statt. Im Rahmen unserer Transferaktivitäten hielt das MPE 10 Patente am Ende von 2018.

Neben der Forschung nimmt unser Institut auch universitäre Ausbildungsaufgaben wahr. Mehr als zehn MPE-Wissenschaftler sind als Hochschullehrer an zahlreichen Universitäten tätig und betreuen studentische Forschungsarbeiten, wie z.B. Bachelor-, Master- und Doktorarbeiten. Die Mehrzahl davon an den beiden Münchner Universitäten, aber auch an anderen deutschen Hochschulen und im Ausland. Darüber hinaus veranstalten wir spezielle Seminare und Symposien zu den im Institut behandelten Forschungsgebieten, häufig in Zusammenarbeit mit Universitätsinstituten. Unsere sehr erfolgreiche „International Max-Planck Research School (IMPRS) on Astrophysics“ an der Ludwig-Maximilians-Universität (LMU) München brachte eine wesentliche Intensivierung der Doktorandenausbildung im Raum Garching/München. An dieser im Jahre 2000 gegründeten „Graduate School“ sind neben unserem Institut und dem Max-Planck-Institut für Astrophysik (MPA) noch das Institut für Astronomie und Astrophysik der LMU und die Europäische Südsternwarte beteiligt. Mit typisch 80 Doktoranden in diesem Programm, wovon etwa 30 am MPE arbeiten, gehört die IMPRS on Astrophysics zu den größten Einrichtungen dieser Art weltweit.

Das MPE präsentiert seine Arbeit und die Ergebnisse seiner Forschung auch einem breiten Publikum. Regelmäßige Meldungen über die Wissenschaft, Projekte und Menschen am Institut werden ergänzt durch eine Vielzahl an Veranstaltungen sowohl im Hause als auch außerhalb, wie Führungen für Gruppen (meist Schulklassen), Teilnahme am jährlichen „Girls’ Day“, dem zweijährig stattfindenden „Tag der offenen Tür“ sowie der Anleitung von Schüler- und Hochschulpraktikanten. Darüber hinaus halten MPE Wissenschaftler regelmäßig populär-wissenschaftliche Vorträge außer Haus.

2 Personal und Ausstattung

2.1 Personalstand

Direktoren:

Prof. Dr. K. Nandra, (Geschäftsführung) Hochenergie-Astrophysik; Prof. Dr. R. Bender, Optische und Interpretative Astronomie; Prof. Dr. P. Caselli, Zentrum für Astrochemische Studien; Prof. Dr. R. Genzel, Infrarot- und Submillimeter-Astronomie; Prof. Dr. G. Haerendel (emeritiert); Prof. Dr. R. Lüst (emeritiert); Prof. Dr. G. Morfill (emeritiert); Prof. Dr. K. Pinkau (emeritiert); Prof. Dr. J. Trümper (emeritiert).

Auswärtige wissenschaftliche Mitglieder:

Prof. Dr. E. van Dishoeck (Universität Leiden, Niederlande); Prof. Dr. V. Fortov (IHED, Moskau, Russland); Prof. Dr. J. Kormendy (University of Texas at Austin, USA); Prof. Dr. R.Z. Sagdeev (University of Maryland, College Park, USA); Prof. Dr. M. Schmidt (CALTECH, Pasadena, USA); Dr. Karl Schuster (IRAM, Grenoble, Frankreich); Prof. Dr. A. Sternberg (Tel Aviv University, Isreal); Prof. Dr. Y. Tanaka † (JSPS, Bonn; MPE, Deutschland).

Fachbeirat:

Prof. Dr. J. Bergeron (Institute d’Astrophysique de Paris, Frankreich); Prof. Dr. M. Colless (Australian Astronomical Observatory, Australien); Prof. Dr. N. Evans (University of Texas at Austin, USA); Prof. Dr. K. Freeman (Mt. Stromlo Observatory, Australien); Dr. N.

Gehrels † (NASA/GSFC, Greenbelt, USA); Prof. Dr. F. Harrison (CALTECH, USA); Prof. Dr. R. Kennicutt (University of Cambridge, UK); Prof. Dr. E. Quataert (University of California Berkeley, USA); Prof. Dr. G. Stacey (Cornell University, USA).

Fachübergreifende Fachbeiräte:

Prof. Dr. G. Anton (Universität Erlangen-Nürnberg, Deutschland); Prof. Dr. M. Perryman (ESA/ESTEC, Niederlande).

Kuratorium:

Prof. Dr. A. Bode (Leibniz-Rechenzentrum der Bayerischen Akademie der Wissenschaften, Garching); Dr. R. Breuer (ehemaliger Chefredakteur Spektrum der Wissenschaft, Heidelberg); Prof. Dr. P. Ehrenfreund (Vorstandsvorsitzender, Deutsches Zentrum für Luft und Raumfahrt (DLR), Köln); MdB F. Hahn (Deutscher Bundestag, Berlin); Prof. Dr. B. Huber (Präsident der LMU München, München); Dr. F. Merkle (OHB System AG, Bremen); Dr. U. von Rauchhaupt (Frankfurter Allgemeine Zeitung, Frankfurt/Main); Prof. R. Rodenstock (Optische Werke G. Rodenstock GmbH & Co. KG, München); Dr. J. Rubner (Bayerischer Rundfunk, München); Dr. M. Wolter (Bayerisches Staatsministerium für Wirtschaft, Energie und Technologie, München).

Wissenschaftliche Mitarbeiter und Angestellte

A. Infrarot-und Sub-mm-Astronomie

Dr. M. Bauböck, Dr. S. Belli, Dr. A. Cortes, Dr. A. Contursi, Dr. R. Davies, Dr. C. Deen, S. Dengler, Dr. J. Dexter, Prof. Dr. P.T. de Zeeuw, Dr. F. Eisenhauer, Dr. S. Faccini, Dipl.-Phys. H. Feuchtgruber, Dr. N. Förster Schreiber, Dr. N. Gao, Dr. V. Garrel, Dr. S. Gillessen, Dr. M. Habibi, Dr. R. Herrera-Camus, A. Kleiser, Dr. M. Lee, Dr. Y. Liu, Dr. D. Lutz, Dr. E. Nelson, Dr. T. Ott, Dr. O. Pfuhl, Dr. A. Poglitsch, Dr. S. Price, Dr. S. Rabien, A. Richter, Dr. M. Rosensteiner, Dr. A. Schrubba, Dr. J. Shangguan, Dr. T. Shimizu, Dr. E. Sturm, Dr. L. Tacconi, J. Zanker-Smith.

Doktoranden (D)/Master (M):

P. Cazzoletti (D.), S. von Fellenberg (D.), A. Jimenez Rosales (D.), M. Karl (M.), M.-Y. Lin (D.), M. Lippa (D.), P. Plewa (D.), R. Stock (M.), H. Übler (D.), I. Waisberg (D.), F. Widmann (D.), L. Wölfer (D.), R. Worth-Davies (D.).

B. Hochenergie-Astrophysik

Dr. R. Andritschke, A. Bähr, Prof. Dr. W. Becker, Dr. D. Bogue, Dr. A. Behrens, B. Boller, Prof. Dr. T. Boller, M. Bonholzer, Dr. M. Bradshaw, Dr. H. Bräuninger, Dr. H. Brunner, Dr. J.M. Burgess, Dr. W. Burkert, A. Buron, Dr. V. Burwitz, Dr. S. Carpano, Dr. J. Chen, Dr. W. Collmar, Dr. A. Del Moro, Dr. K. Dennerl, Prof. Dr. R. Diehl, Dr. T. Dwelly, Dr. D. Eckert, Dipl.-Ing. J. Eder, V. Emberger, Dr. T. Eraerds, Dr. G. Erfanianfar, W. Frankenhuizen, Dr. M. Freyberg, Dr. P. Friedrich, Dr. M. Fürmetz, R. Gaida, Dr. J. Greiner, Dr. C. Grossberger, Dr. A. Gueguen, Dr. F. Haberl, S. Hartl, K. Hartmann, Dipl.-Math. G. Hartner, G. Hauser, Dr. F. Hofmann, Dr. A. von Kienlin, Dr. M. Klein, A. Koch, M.M. La Caria, Dr. C. Maitra, K. März, Dr. N. Meidinger, Dr. A. Merloni, S. Obergassl, S. Ott, C. Pellicciari, Dipl.-Phys. E. Pfeffermann, Dr. G. Ponti, Dr. P. Predehl, Dr. A. Rau, J. Reiffers, Dr. J. Sanders, Dr. P. Schady, T. Schweyer, Dr. T. Siegert, V. Stehlikova, J. Tran, Dr. W. Treberspurg, A. Tüchler, Dr. X.-L. Zhang.

Doktoranden (D)/Master (M):

S. Argawal (D.), R. Arcodia (D.), L. Baronchelli (D.), F. Berlato (D.), J. Bodensteiner (M.), J. Bolmer (D.), I.J. Chitham (D.), D. Coffey (D.), A. Fresco (D.), F. Käfer (D.), F. Knust (D.), A. Malyali (D.), J. Müller-Seidlitz (D.), M. Pleintinger (D.), G. Rodrigues (M.), T. Simm (D.), S. Steinmassl (M.).

C. Optische und Interpretative Astronomie

Dr. C. Bodendorf, Prof. Dr. H. Böhringer, Dipl.-Phys. A. Bohnet, A. Chatusvedi, S. De Nicola, Dr. M. Fabricius, Dr. D. Farrow, Dr. M. Fossati, Dr. G. Gajda, Dr. N. Geis, Prof. Dr. O. Gerhard, Dr. J. Gracia Carpio, Dr. F. Grupp, Dr. V. Guglielmo, I. Hartung, Dr. U. Hopp, Dr. B. Hoyle, C. Ingram, Dipl.-Ing. J. Kaminski, Dr. R. Katterloher, Dr. S. Khoperskov, Dr. X. Mazzalay, Dr. F. Montesano, B. Niebisch, Dr. C. Obermeier, Dr. P. Paulino-Afinso, M.Sc. D. Penka, A. Piemonte, Dr. F. Raison, Dr. R. Saglia, Dr. A. Sanchez, Dr. J. Snigula, Dr. J. Thomas, Dr. C. Wegg, Prof. Dr. J. Weller, Dr. M. Wetzstein.

Doktoranden (D)/Master (M):

A. Arth (D.), R. Bolze (M.), M. Blana Diaz (D.), F. Clarke (D.), S. De Nicola (D.), V. Fahrenschon (D.), M. Häuser (D.), J. Hou (D.), H. Kellermann (D.), M. Kluge (D.), M. Kodric (D.), M. Lippich (D.), B. Neureiter (D.), G. Pentaris (M.), C. Pulsoni (D.), I. Söldner-Rembold (D.), J. Stewer (M.), P. Sudek (M.), T. Varga (D.), S. Wylie (D.).

D. Zentrum für Astrochemische Studien

Dr. V. Ali-Lagoa, Dr. L. Bizzocchi, Dr. R. Choudhury, Dr. F. de Oliveira Alves, Dr. M. Gong, Dr. C. Endres, Dr. E. Etim, Dr. B.M. Giuliano, Dr. S. Hocuk, Dr. A. Ivlev, Dr. J. Laas, Dr. V. Lattanzi, Dipl.-Ing. P. Maier, D. Mardones, Dr. M.J. Maureira Pinochet, Dr. A. Mullins, Dr. T. Müller, Dr. Z. Nagy, Dr. J. Pineda Fornerod, Dr. B. Riaz, Dr. A. Schmiedeke, Dr. D. Segura-Cox, Dr. C. Shingledecker, Dr. K. Silsbee, Dr. O. Sipilä, Dr. S. Spezzano, Dr. L. Szücs, Dr. A. Vasyunin, Dr. B. Zhao.

Doktoranden (D)/Master (M):

C. Agurto Ganges (D.), A. Barnes (D.) A. Chacon Tanarro (D.), J. Chantzoz (D.), S. Choudhury (D.), B. Müller (D.), D. Prudenzano (D.), E. Redaelli (D.), Sokolov (D.).

E. Unabhängige Forschungsgruppen

a) Forschungsgruppe Prof. Dr. A. Burkert

Prof. Dr. A. Burkert, Dr. M. Schartmann.

Doktoranden (D)/Master (M):

M. Behrendt (D.), S. Heigl (D.).

b) Forschungsgruppe Prof. Dr. J. Mohr

Dr. M. Klein, Prof. Dr. J. Mohr.

Doktoranden (D)/Master (M):

S. Grandis (D.), N. Gupta (D.), M. Paulus (D.).

F. Ingenieurbereiche und Werkstätten

a) Elektrotechnik

Dipl.-Ing. S. Albrecht, M. Baade, M. Bachhuber, Dipl.-Ing. (FH) L. Barl, A. Besendörfer, H. Böhme, Dipl.-Ing. (FH) W. Bornemann, Dipl.-Ing. (FH) T. Burghardt, M.Sc. A. Buron, H. Cibooglu, A. Emslander, M.Sc. M. Gillhuber, R. Gressmann, Dipl.-Ing. (FH) O. Hälker, Dipl.-Ing. (FH) O. Hans, Dipl.-Ing. (FH) W. Kink, M.S. A. Koch, P. Langer, M.Sc. A. Lederhuber, M.Sc. C. Mandla, Dipl.-Ing. (FH) S. Müller, F. Oberauer, G. Ott, Dipl.-Ing. (FH) S. Ott, H. Özdemir, Dr. M. Plattner (Leitung), Dipl.-Ing. (FH) C. Rau, Dipl.-Ing. (FH) J. Reiffers, P. Reiss, M. Rupprecht, M. Schneider, F. Schrey, T. Unterlinner, V. Yaroshenko, J. Zanker-Smith, Dipl.-Ing. (FH) J. Ziegleder.

b) Mechanik

R. Bayer, T. Blasi, A. Brara, B. Budau, S. Czempiel, C. Deysenroth, M. Deysenroth, Dipl.-Ing. (FH) K. Dittrich, Dr. B. Eder, J. Eibl, P. Feldmeier, J. Gahl, Dipl.-Phys. H. Gemperlein, A. Goldbrunner, Dr. M. Hartl, J. Hartwig, F. Haußmann, M.Sc. V. Hörmann,

M. Honsberg, D. Huber, F.-X. Huber, Dipl.-Ing. H. Huber, H.-J. Kestler, T. Kratschmann, Dipl.-Ing. (FH) B. Mican, Dipl.-Ing. (FH) S. Paßlack, Dipl.-Ing. (FH) A. Pflüger, Dipl.-Ing. (FH) D. Pietschner, A. Reinold, C. Rohe, R. Sandmair, Dr. J. Schubert (Leitung), W. Schunn, D. Schuppe, S. Senftleben, F. Soller, R. Strecker M.Sc. J. Tran.

c) Auszubildende

K. Bergner, C. Furchtsam, S. Heckmair, L. Loichinger, M. Rusp, F. Waldhör C. Warmuth, J. Ziegmeier.

G. Zentrale DV-Gruppe

Dipl.-Ing. A. Agudo Berbel, H. Baumgartner, Dipl.-Phys. A. Bohnet (Leitung), A. Kleiser, L. Klose, C. Kollmer, A. Oberauer, Dr. T. Ott, J. Paul, Dipl.-Ing. (FH) R. Sigl, Dr. J. Snigula, Dipl.-Ing. E. Wieprecht, Dipl.-Ing. (FH) E. Wiezorrek.

H. Öffentlichkeitsarbeit

E. Collmar, Dr. W. Collmar, Dr. H. Hämmerle, B. Niebisch.

I. Publikationsunterstützung

R. Hauner.

J. Bibliothek

C. Bartels, E. Blank.

K. Verwaltung und Allgemeine Dienste

G. Apold, A. Arturo, S. Ayari, T. Bauer, L. Belscak, U. Cziasto, C. Eicher, L. Gareva, S. Goldbrunner, M. Grohmann, I. Hartung, S. Hausmann, R. Hidasi, S. Hofstetter, T. Jäkel, J. Jirsch, S. Kaps, W. Karing, M. Keil, L. Kestler, A. Krapvina, E. Kuhwald, E. Maier, D. Meindl, A. Nagy, A. Neun, J. Paschou, M. Peischl, C. Preisler, R. Rochner, S. Rosenberger, A. Sacher, P. Sandtner, B. Scheiner, A. Schmidt, S. Schwaiger, B. Seyfarth, C. Stock, D. Stöckl, C. Stricker, F. Thiess, L. Thiess, K. Üblacker, J. Uhland, J.P. Vogt.

2.2 Gäste

Im Jahr 2018 besuchten 112 Gastwissenschaftler das MPE, mit Besuchszeiten von einigen Tagen bis zu einigen Monaten.

3 Preise, Auszeichnungen, Berufungen

de Zeeuw, P.T.: Knight in the Order of the Dutch Lion, Groningen, Niederlande, Mai 2018

de Zeeuw, P.T.: Blaauw Visiting Professorship 2018, University of Groningen, Groningen, Niederlande, 2018

de Zeeuw, P.T.: Blaauw Lecture 2018, University of Groningen, Groningen, Niederlande, Oktober 2018

Haerendel, G.: Ehrendoktorwürde der Universität von Kreta, Heraklion, Griechenland, September 2018

Ivlev, A.: Ehrendoktorwürde, Russische Akademie der Wissenschaften, Moskau, Russland, April 2018

Tacconi, L.: Vorsitz der Kommission „ESA Cosmic Vision 2050 planning exercise“, ESA Madrid, Spanien, Dezember 2018

van Dishoeck, E.: Kavli Preis für Astrophysik, Oslo, Norwegen, September 2018

van Dishoeck, E.: James Craig Watson Medaille, National Academy of Sciences, Washington, USA, April 2018

4 Lehrtätigkeit, Prüfungen und Gremientätigkeit

4.1 Lehrtätigkeiten

Alves, F.: Polarization and magnetic Fields at Disk Scales, Universitat de Barcelona SS 18.

Becker, W.: Astrophysikalisches Doktorandenseminar mit den Studenten der *International Max-Planck Research School (IMPRS) on Astrophysics*, LMU München WS 17/18, SS 18, WS 18/19.

Bender, R.: Astronomisches Kolloquium, LMU München WS 17/18, SS 18, WS 18/19; Astrophysikalisches Grundpraktikum, LMU München WS 17/18, SS 18, WS 18/19; Forschungsprojekt Masterarbeit, Anleitung zum wissenschaftlichen Arbeiten, LMU München WS 17/18, SS 18, WS 18/19; Grundlagen der fortgeschrittenen Astrophysik (Essential of Advanced Astrophysics), LMU München WS 17/18/, SS 18, WS 18/19; Ergänzung zur Vorlesung „Grundlagen der fortgeschrittenen Astrophysik“, LMU München WS 17/18, SS 18, WS 18/19; Astrophysikalisches Hauptseminar theoretisch und numerisch orientiert, „Tools in modern astrophysics“, LMU München WS 17/18, SS 18, WS 18/19; Begleitendes Kolloquium zum Astrophysikalisches Hauptseminar theoretisch und numerisch orientiert, LMU München WS 17/18, SS 18, WS 18/19; Astrophysikalisches Hauptseminar experimentell und beobachtungsorientiert, „Tools in modern astrophysics“, LMU München WS 17/18, SS 18, WS 18/19; Begleitendes Kolloquium zum Astrophysikalisches Hauptseminar experimentell und beobachtungsorientiert, LMU München WS 17/18, SS 18, WS 18/19; Projektseminar mit begleitendem Kolloquium „Extragalactic group seminar“, LMU München SS 18; Projektseminar mit begleitenden Kolloquium „Gravitational lensing“, LMU München WS 17/18, SS 18; Projektseminar mit begleitenden Kolloquium „Galaxies“, LMU München WS 17/18, SS 18, WS 18/19; Projektseminar mit begleitenden Kolloquium aus dem Bereich experimenteller Arbeiten und Instrumentenentwicklung in der Astronomie, LMU München WS 17/18, SS 18, WS 18/19; Projektseminar mit begleitenden Kolloquium, vorbereitendes Kolloquium zur Masterarbeit mit Tutorium, Kolloquium und Tutorium aus dem Bereich der Kosmologie, Anleitung zum Wissenschaftlichen Arbeiten, LMU München WS 17/18, SS 18, WS 18/19; Projektseminar mit begleitenden Kolloquium, vorbereitendes Kolloquium zur Masterarbeit mit Tutorium, Kolloquium und Tutorium aus dem Bereich experimenteller Arbeiten, Anleitung zum wissenschaftlichen Arbeiten, LMU München WS 17/18, SS 18, WS 18/19; Galaxies, Vorlesung, LMU München WS 18/19; Ergänzung zur Vorlesung „Galaxies“, LMU München WS 17/18.

Böhringer, H.: The Homogeneous Universe and Large Scale Structure, IMPRS on Astrophysics, Garching, SS 18.

Boller, Th.: AGN Physics, IMPRS on Astrophysics, Garching, SS 18; Strahlung und Materie, Goethe-Universität Frankfurt SS 18; Verteilungsfunktionen der Astrophysik, Goethe-Universität Frankfurt SS 18.

Caselli, P.: Introduction to Astrochemistry, Chalmers University of Technology, Göteborg, Schweden, WS 18.

Dexter, J.: Exploring strong gravity with accreting black holes, Universität Heidelberg, SS 18.

Diehl, R.: Astrophysics Seminar „Nuclei in the Cosmos“, TU München WS 17/18, SS 18, WS 18/19 (mit Dozenten vom MPE, MPA, LMU, TU); Observational Astrophysics, TU München SS 18.

Eisenhauer, F.: Einführung in die Astrophysik, TU München WS 17/18, WS 18/19; High Angular Resolution Astronomy: Adaptive Optics and Interferometry, TU München SS 18.

Ivlev, A.: Plasma Physics for Astrophysics, LMU München WS 18/19.

5 Wissenschaftliche Arbeiten

Die Wissenschaft und Instrumentenentwicklung der einzelnen Forschungsgruppen (siehe Einleitung) ist ausführlich auf unseren Internetseiten (<http://www.mpe.mpg.de>) unter dem Punkt „Forschung“ dargestellt. Wichtige Einzelergebnisse sind unter „MPE Forschungsmeldungen“ in zeitlicher Reihenfolge beschrieben.

Die wichtigsten Hardware-Projekte in der Infrarot-Astronomie sind derzeit das Interferometer GRAVITY und die Kamera MICADO für das ESO ELT, in der Röntgenastronomie die Satellitenprojekte eROSITA und ATHENA, in der optischen Astronomie die Entwicklung der Optik für das ESA-Weltraumteleskop „Euclid“ und der Bau von modernen Laborspektrographen in der Astrochemie.

6 Akademische Abschlussarbeiten

6.1 Bachelorarbeiten

Abgeschlossen:

Blumhoff, M.: Sternentstehungsgeschichte des Universums. Ludwig-Maximilians-Universität München 2018.

Gindl, S.: Planetenentstehung: Modelle und Instrumente. Ludwig-Maximilians-Universität München 2018.

Lipka, M.: Supermassive schwarze Löcher in Galaxienzentren und ihre Masse. Ludwig-Maximilians-Universität München 2018.

Rieth, F.: Wachstumsrate kosmischer Strukturen hergeleitet durch die SDSS-III BOSS DR12 Datensätze. Ludwig-Maximilians-Universität München 2018.

Rottstock, H.: Dunkle Materie in elliptischen Galaxien. Ludwig-Maximilians-Universität München 2018.

Steiger, B.: Faser Fabry-Perot Interferometer als Kalibrierungsquelle für astronomische Spectrographen. Ludwig-Maximilians-Universität München 2018.

Zoeller, R.: Massenbestimmung von supermassereichen schwarzen Löchern in kompakten elliptischen Galaxien. Ludwig-Maximilians-Universität München 2018.

6.2 Masterarbeiten

Abgeschlossen:

Chaturvedi, A.: Understanding Galaxy ESO325-G004 using SINFONI and MUSE spectroscopy. Laboratoire d'Astrophysique de Marseille 2018.

Grabichler, J.: Design and development of an electrical drive train operated in cryogenic and space environment. Technische Universität München 2018.

Hochstaetter, F.: Test and implementation of a guiding camera for FOCES at the 2m Wendelstein telescope. Ludwig-Maximilians-Universität München 2018.

Karl, M.: Multiple Star Systems in the Orion Nebula. Technische Universität München 2018.

Kohlmann, C.: A CMOS based MASS turbulence profiler for the LBT. Ludwig-Maximilians-Universität München 2018.

Mehrgan, K.: The faint center of Holm15A - The dynamical fingerprints of the largest supermassive black hole known so far?. Technische Universität München 2018.

Murrell, G.G.: Dark matter halo in the dwarf elliptical galaxy VCC2048. University College Dublin 2018.

Rodrigues dos Santos, G.M.: Simulation of eROSITA observations of supernova remnant candidates. Ludwig-Maximilians-Universität München 2018.

Stock, M.R.: Spectro-Interferometric Signatures of the Broad Line Regions in Active Galactic Nuclei. Technische Universität München 2018.

Vignola, M.: Constraining the Initial Mass Function of the giant early-type galaxies NGC 1332 and NGC 7619. Università di Bologna 2018.

von Fellenberg, S.D.: A new Far Infrared Window into the Galactic Center - A Detection of Sgr A* in the Far Infrared. Technische Universität München 2018.

6.3 Dissertationen

Abgeschlossen:

Blaña Diaz, M.: Dynamics of the bar and the bulge of the Andromeda galaxy M31. Ludwig-Maximilians-Universität München 2018.

Chacon-Tanarro, A.: Observational studies of a dense cloud core on the verge of star formation. Ludwig-Maximilians-Universität München 2018.

Finozzi, F.: Triaxial models of massive elliptical galaxies. Ludwig-Maximilians-Universität München 2018.

Guglielmo, V.: Groups and clusters of galaxies in the XXL Survey. Dipartimento di Fisica ed Astronomia, Università degli studi di Padova, INAF-OaPd (Padova, Italy), and Université de Aix Marseille, LAM (Marseille, France) 2018.

Hartke, J.: Substructures, accretion events, and surrounding diffuse intra-group light in bright early-type galaxies. Ludwig-Maximilians-Universität München 2018.

Lippa, M.A.: Interferometry in astronomy. Ludwig-Maximilians-Universität München 2018.

Plewa, P.M.: The galactic center in motion. Ludwig-Maximilians-Universität München 2018.

Söldner-Remboldt, I.: The velocity ellipsoid of elliptical galaxies. Ludwig-Maximilians-Universität München 2018.

Sokolov, V.: Early stages of massive star formation. Ludwig-Maximilians-Universität München 2018.

7 Tagungen, Projekte am Institut und Beobachtungszeiten

7.1 Tagungen und Veranstaltungen

A workshop to discuss science/technical aspects of the Atacama Large-Aperture Submm/mm Telescope (AtLAST), Garching, Deutschland, 17.01. - 19.01.2018, Organisation: F. Bertoldi, C. De Breuck, P. Caselli, C. Casey, J. Conway, G. Geach, D. Iono, R. Ivison, P. Klaassen, S. Leurini, T. Mroczkowski, O. Noroozian, D. Riechers, R. Siebenmorgen, L. Testi, A. Wootten.

eBOSS collaboration meeting, Garching, Deutschland, 07.02. - 09.02.2018, Organisation: J. Comparat, A. Merloni, B. Boller, K. Nandra.

664. WE-Heraeus-Seminar on Prebiotic Molecules in Space and Origins of Life on Earth, Bad Honnef, Deutschland, 19.03. - 23.03.2018, Organisation: P. Caselli, D. Braun, C. Ceccarelli, P. Ehrenfreund, C. Endres.

The Trans-Neptunian Solar System, Coimbra, Portugal, 26.03. - 29.03.2018, Organisation: A. Barucci, H. Boehnhardt, M. Brown, J. Fernandez, W. Grundy, O. Hainaut, W. Ip, D. Jewitt, A. Morbidelli, T. Müller, K. Noll, N. Peixinho, D. Prialnik, L. Young, J. Watanabe.

Complex Organic Molecules in the Universe: current understanding and perspectives, Special Session SS5, European Week of Astronomy and Space Science, Liverpool, UK, 04.04.2018,

Organisation: I. Jimenez-Serra, P. Caselli, S. Viti, L. Testi, J. Martin-Pintado, M. Minisale.

Small Bodies Near and Far (SBNAF) EU H2020 Workshop, Granada, Spanien, 25.04. - 27.04.2018, Organisation: T. Müller, R. Duffard, P. Santos-Sanz.

Tracing the Flow: Galactic Environments and the Formation of Massive Stars, Lake Windermere, UK, 02.06 - 06.06.2018, Organisation: G. Fuller, S. Breen, C. Brogan, P. Caselli, G. Garay, P. Hennebelle, S. Kurtz, S. Longmore, R. Smith, K. Tatematsu, S. Walch.

KIAA Forum on Gas in Galaxies – Star Formation and Quenching in Galaxies, Kavli Institute for Astronomy and Astrophysics, Peking University, Beijing, China, 18.06. - 22.06.2018, Organisation: J. Wang (chair), L. Staveley-Smith (co-chair), R. Wang (co-chair), Y. Peng (co-chair), A. Saintonge, B. Catinella, F. Bigiel, H. Mo, L.J. Tacconi, M. Krumholz, M. Haynes, M. Putman, M. Zhu, R. Maiolino, T. van der Hulst and Y. Gao.

4th CRISM conference: Cosmic Rays and the Interstellar Medium, Grenoble, Frankreich, 25.06. - 29.06.2018, Organisation: E. Bergin, B. Bertucci, A. Bykov, P. Caselli, R. Lallement, M. Lemoine-Goumard, A. Marcowith, M. Potgieter, P. Salati.

The Laws of Star Formation: From the Cosmic Dawn to the Present Universe, Kavli Institute for Cosmology, University of Cambridge, UK, 02.07. - 06.07.2018, Organisation: D. Calzetti (co-chair), I. De Looze (co-chair), M. Galametz (co-chair), M. Relaño-Pastor (co-Chair), G. Bruzual, F. Combes, A. Fabian, T. Heckman, L.J. Tacconi, S. Viti and A. Whitworth.

COSPAR symposium E1.12 AGN X-Ray Surveys: Soft to Hard and Deep to Wide, Pasadena, USA, 14.07 - 22.07.2018, Organisation: A. Comastri, F. Civano, R. Hickox, B. Lehmer, I. Georgantopoulos, A. Alonso-Herrero, M. Volonteri, F. Harrison, S. Fotopoulou.

The Physics of Galaxy Scaling Relations and the Nature of Dark Matter, Kingston, Canada, 15.07. - 20.07.2018, Organisation: D. Calzetti, S. Courteau, N.M. Förster Schreiber, P. Hopkins, C.-P. Ma, A. Macció, R. Somerville, M. Strauss, F. van den Bosch, M. Volonteri.

15th Potsdam Thinkshop: The Role of Feedback in Galaxy Formation: from Small-scale Winds to Large-scale Outflows, Potsdam, Deutschland, 03.09. - 07.09.2018, Organisation: A. Di Cintio, N.M. Förster Schreiber, J. van Gorkom, A. Kravtsov, N. Libeskind, C. Martin, C. Pfrommer, J.X. Prochaska, P. Richter, L. Sales, I. Smail, V. Springel, M. Steinmetz, R. Teyssier, T. Urrutia, S. Walch, E. Zweibel.

European Planetary Science Congress 2018 (EPSC): Small Bodies (comets, KBOs, rings, asteroids, meteorites, dust) SB2, Berlin, Deutschland, 16.09. - 21.09.2018, Organisation: A. Marciniak, T. Müller, J. Durech.

The Scientific Heritage of Malcolm Walmsley, Florenz, Italien, 01.10. - 02.10.2018, Organisation: R. Cesaroni, D. Galli, P. Caselli, R. Maiolino, K. Menten, T. Ray, L. Testi.

Workshop on Laboratory Astrophysics 2018, Hamburg, Deutschland, 10.10. - 12.10.2018, Organisation: M. Schnell, T. Giesen, S. Schlemmer, O. Dopfer, K. Menten, P. Caselli, H. Kreckel, T. Henning, C. Jaeger, H. Mutschke.

The Central Arcsecond: Towards Testing General Relativity in the Galactic Center, Ringberg, Deutschland, 28.10.- 03.11.2018, Organisation: J. Dexter, F. Eisenhauer, H. Falcke, R. Genzel, A. Ghez, S. Gillessen, D. Haggard, S. Markoff, F. Özel, E. Quataert, R. Sari.

Hendrik van de Hulst Centennial Symposium. The Interstellar Medium of Galaxies: Status and Future Perspectives, Leiden, The Netherlands, 05.11. - 09.11.2018, Organisation: M. Baes, A. Bolatto, C. Carilli, P. Goldsmith, J. van Gorkom, T. Henning, R. Klessen, S. Madden, C. McKee, G. Melnick, T. Onaka, L.J. Tacconi, X. Tielens and T. Troland.

Small Bodies Near and Far (SBNAF) EU H2020 Workshop, Garching, Deutschland, 12.11. - 14.11.2018, Organisation: T. Müller, V. Ali-Lagoa.

AHEAD: X-ray and Multiwavelength Surveys School, Garching, Deutschland, 19.11. - 23.11.2018, Organisation: M. Salvato, V. Burwitz, A. Merloni.

KMOS@5: Star and Galaxy Formation in 3D – Challenges at KMOS 5th year, Garching, Deutschland, 03.12. - 06.12.2018, Organisation: R. Bender, L. Coccato, J. Corral Santana, R. Davies, C. Evans, N.M. Förster Schreiber, M. Hilker, S. Ramsay, M. Rodrigues, E. Sani, L. Schmidtbreick, R. Sharples.

7.2 Projekte und Kooperationen mit anderen Instituten

Australien

Australian National University, Canberra: Galaxienentstehung.

Monash University, Melbourne: Nukleare Astrophysik.

Swinburne University of Technology, Victoria: Millisecond Pulsars.

University of Western Sydney: Magellanic Clouds.

Belgien

CSL Liège, Katholieke Universiteit Leuven: INTEGRAL-Spectrometer SPI.

Univerisité de Liège: CAS-Beobachtungen.

Brasilien

Centro Brasileiro de Pesquisas, Rio: DES.

Laboratorio Nacional de Astrofisica: Prime Focus Spectrograph.

Observatorio Nacional, Rio de Janeiro: DES.

Universidade de Sao Paulo: Prime Focus Spectrograph; Galaxienentstehung.

Universidade Federal de Minas Gerais, Belo Horizonte: CAS-Beobachtungen.

Universidade Federal do Rio, Rio de Janeiro: DES.

Universidade Federal do Rio Grande do Sul: Nearby Active Galaxies.

Canada

Dunlap Observatory, Richmond Hill: First Hydrostatic Cores (FHSCs).

NRC - Herzberg Astronomy and Astrophysics, Ottawa: CAS Observations.

University of Alberta, Edmonton (Alberta): CAS-Beobachtungen.

University of Victoria, Victoria: CAS-Beobachtungen.

University of Western Ontario, London (Ontario): CAS-Beobachtungen; CAS-Theorie.

Chile

Universidad de Chile, Santiago de Chile: CAS-Beobachtungen.

Universidad de Concepcion: Röntgen-Doppelsternsysteme; CAS-Beobachtungen.

Universidad Catolica Santiago: Röntgen-Doppelsternsysteme; Galaktisches Zentrum.

China

Donghua University, Shanghai: CAS-Theorie.

Institute for High-Energy Physics (IHEP), Peking: AGN und unidentifizierte Gammaquellen von COMPTEL und INTEGRAL; Einstein Probe; eXTP.

Kavli Institute for Astronomy and Astrophysics at Peking University, Beijing: Prime Focus Spectrograph; CAS-Beobachtungen.

Nationanal Astronomical Observatories of China: Beijing: Prime Focus Spectrograph.

Shanghai Jiao Tong University: Prime Focus Spectrograph.

Tsinghua University: Prime Focus Spectrograph.

University of Hongkong: Strahlungsmechanismen von Pulsaren vom Röntgen bis zum Gammabereich.

University of Science and Technology of China, Hefei: Prime Focus Spectrograph.

Xiamen University, Xiamen: Prime Focus Spectrograph.

Dänemark

Dänemarks Technische Universität: ATHENA.

Deutschland

Astrophysikalisches Institut Potsdam: eROSITA; XMM-Newton; OPTIMA; ARGOS; HETDEX; 4MOST.

Deutsches Elektronen-Synchrotron, Hamburg: CAS-Labormessungen.

European Southern Observatory (ESO), Garching: GRAVITY; Galaxienentstehung; MICADO; Nukleare Astrophysik; ERIS; Black Hole Cam; Infrared Dark Clouds; CAS-Beobachtungen; CAS-Theorie.

Fraunhofer Institut für Integrierte Schaltungen, Erlangen: Mikroelektronikentwicklungen; ATHENA.

Heinrich-Heine-Universität, Düsseldorf: Soft Matter Physics.

Institut für Astronomie und Astrophysik Tübingen (IAAT): XMM-Newton; eROSITA; ATHENA.

Institut für Astrophysik, Universität Göttingen: MICADO.

Institut für Festkörperphysik und Werkstoff-Forschung, Dresden: Entwicklung weichmagnetischer Werkstoffe.

Institut für Materialphysik im Weltraum, Köln: Glasübergänge.

Landessternwarte Heidelberg-Königstuhl, Heidelberg: Nahinfrarotspektrograph LUCI für LBT; Galaxienentstehung; ARGOS.

Laser Zentrum Hannover: Dichroics for ARGOS; Anti-Reflection Coating ERIS.

Ludwig-Maximilians-Universität, München: MICADO; HETDEX; eROSITA; CAS-Beobachtungen; CAS-Theorie.

Max-Planck-Institut für Astronomie, Heidelberg: GRAVITY; LUCI; PanSTARRS; SDSS; ARGOS; MICADO; EUCLID; CAS-Beobachtungen.

Max-Planck-Institut für Astrophysik, Garching: SDSS; OPTIMA; eROSITA; Prime Focus Spectrograph.

Max-Planck-Institut für Gravitationsphysik, Potsdam: Black Hole Cam.

Max-Planck-Institut für Physik (Werner Heisenberg Institut), München: MPI Halbleiterlabor; ATHENA.

Max-Planck-Institut für Radioastronomie, Bonn: ARGOS; Black Hole Cam; CAS-Beobachtungen.

Physikalisch-Technische Bundesanstalt Berlin: eROSITA.

Technische Universität Berlin: Interstellares Medium.

Technische Universität Darmstadt: CAST.

Technische Universität München: Nukleare Astrophysik.

Thüringer Landessternwarte Tautenberg: GROND; Gamma-Ray Bursts.

Universität Bochum: LUCI.

Universität Bonn: Test von Pixeldetektoren für ATHENA; eROSITA; EUCLID; CAS-Beobachtungen.

Universität Düsseldorf: ERC Advanced Grant; CAS-Beobachtungen; CAS-Labore; CAS-Theorie.

Universität Erlangen (ECAP): eROSITA; ATHENA.

Universität Hamburg: eROSITA; OPTIMA (Flarestars).

Universität Heidelberg: ATHENA; XFEL.

Universität Jena: Isolierte Neutronensterne; Nukleare Astrophysik.

Universität Köln: Galaktisches Zentrum; GRAVITY; CAS-Beobachtungen; CAS-Theorie; CAS-Labor.

Universität Mannheim: ATHENA; XFEL.

Universität Stuttgart: CAS-Beobachtungen.

Universität Würzburg: AGADE.

Finnland

Universität of Helsinki, Helsinki: CAS-Theorie; CAS-Beobachtungen.

Frankreich

Aix-Marseille University, Marseille: CAS-Beobachtungen; CAS-Theorie.

CEA, Saclay: INTEGRAL-Spektrometer SPI; CAST; EUCLID; SVOM; ATHENA.

Centre d'Etude Spatiale des Rayonnements (UPS), Toulouse: INTEGRAL-Spektrometer SPI.

IAP Paris: Nukleare Astrophysik.

IAPG Grenoble: GRAVITY; MICADO; CAS-Beobachtungen.

IRAM, Grenoble: CAS-Beobachtungen.

Laboratoire d'Astrophysique de Marseille (LAM): EUCLID; Gamma-Ray Bursts; Prime Focus Spectrograph.

Laboratoire Univers et Particules de Montpellier, Montpellier: Cosmic-ray propagation in molecular clouds.

Observatoire de Paris: MICADO; GRAVITY; CAS-Theorie.

Observatoire de Paris-Meudon: GRAVITY; Galaktisches Zentrum.

Université de Lyon, Lyon: CAS-Beobachtungen.

Griechenland

National Observatory of Athens, Athen: Athena.

University of Crete and Foundation for Research and Technology Hellas (FORTH), Heraklion: Ausbau und Betrieb der Skinakas Sternwarte; Röntgendoppelsternsystemen; OPTIMA Photometer; Röntgen-AGN.

Großbritannien

Queen's University, Belfast: PanSTARRS.

John Moores University, Liverpool: Himmelsdurchmusterung Galaxienhaufen; Infrared Dark Clouds.

Open University, Milton Keynes: Kataklysmische Veränderliche; Novae; ATHENA.

Rutherford Appleton Laboratory, Council for the Central Laboratory of the Research Councils: SIS-Junctions.

SKA Organisation, Jodrell Bank Observatory, Macclesfield: CAS-Beobachtungen.

United Kingdom Astronomy Technology Centre (UKATC): EUCLID; ERIS.

University of Cambridge: DES; CAS-Beobachtungen.

University College London, MSSL: High Energy Pulsars; EUCLID; DES.

University of Durham: PanSTARRS.

University of Edinburgh: DES; PanSTARRS.

University of Leeds: CAS-Beobachtungen; CAS-Theorie.

University of Leicester: XMM-Newton Datenanalyse; ATHENA; Swift; CAS-Beobachtungen.

University of Nottingham: DES.

University of Portsmouth: DES.

University of Sussex: DES.

University of Southampton: Magellanic Clouds.

Indien

Tata Institute of Fundamental Research, Mumbai: CAS-Beobachtungen.

Irland

National University of Ireland, Galway: High Time Resolution Astronomy.

University College Dublin, Dublin: Fermi/GBM.

Israel

School of Physics and Astronomy, Wise Observatory, Tel Aviv: Aktive Galaxien; Galaxienentwicklung.

Weizmann Institut, Rehovot: Galaktisches Zentrum.

Italien

Brera Astronomical Observatory: Himmelsdurchmusterung Galaxienhaufen.

IFCAI-CNR Palermo: XMM-Newton Beobachtungen von Neutronensternen und Pulsaren.

INAF (Istituto Nazionale di Astrofisica): ATHENA, EUCLID.

INAF Arcetri, Florenz: ARGOS; LBT; ERIS; CAS-Beobachtungen; CAS-Theorie.

INAF Padua: ERIS; MICADO; LBT.

INAF Roma: LBT; Nukleare Astrophysik.

INAF Teramo: ERIS.

INAF Trieste: Gamma-Ray Bursts; Fermi/LAT.

INFN Frascati: SIDDHARTA.

Osservatorio Astrofisico di Catania: CAS-Theorie; CAS-Labormessungen.

University Bologna: EUCLID; CAS-Labor; CAS-Beobachtungen.

Japan

Institute of Space and Astronautical Science, Kanagawa: CAS-Beobachtungen.

Institute of Physical and Chemical Research (RIKEN), Hirosawa: CAS-Beobachtungen.

Kavli Institute for the Physics and Mathematics of the Universe, Kashiwa: Prime Focus Spectrograph.

National Astronomical Observatory of Japan, Mitaka/Tokio: CAS-Beobachtungen; Galaxienentwicklung.

Tokio Institute of Technology (TITECH), Ookayama: ASCA/XMM-Newton Beobachtungen von AGN.

Tohoku University, Sendai: Galaxienentwicklung.

University of Osaka: Astro-H.

University of Tokyo, Tokyo: Prime Focus Spectrograph.

Niederlande

ESTEC, Noordwijk: XMM-Newton; INTEGRAL; EUCLID; ATHENA.

JIVE Dwingeloo: Black Hole Cam.

NOVA (Leiden, Groningen, Amsterdam): MICADO; ERIS.

Leiden University, Leiden: CAS-Beobachtungen; CAS-Theorie.

Radboud University, Nijmegen: Black Hole Cam.

SRON, Utrecht: Chandra-LETG.

University of Groningen, Kapteyn Institute: Dichteverteilung im Universum; EUCLID; CAS-Theorie; CAS-Beobachtungen.

Österreich

Institut für Weltraumforschung, Graz: ATHENA WFI.

RICAM Linz: MICADO.

Universität und TU Wien: MICADO; ATHENA.

Universität Innsbruck: MICADO.

Universität Linz: MICADO.

Polen

Adam Mickiewicz University, Poznań: CAS-Beobachtungen.

Nicolaus Copernicus Universität, Torun: Pulsars Astronomical Centers; ATHENA; CAS-Beobachtungen.

Space Research Center (CBK), Warschau: ATHENA WFI.

University Zielona Góra: OPTIMA.

Portugal

Observatorio Astronomico de Lisboa, Lissabon: Athena.

SIM Lissabon und Porto: GRAVITY.

Russland

Baumann Moscow State Technical University, Moscow: Stark gekoppelte Systeme; Time-domain spectroscopy; CAS-Theorie; CAS-Labormessungen.

Institute of Astronomy, Moscow: CAS-Theorie.

Lebedev Institute of Physics, Moscow: CAS-Theorie.

Prokhorov General Physics Institute, Moscow: CAS-Theorie; CAS-Labormessungen.

Space Research Institute (IKI) of the Russian Academy of Science, Moscow: eROSITA; Spectrum-Röntgen-Gamma.

Skobeltsyn Institute of Nuclear Physics, Moscow: Nukleare Astrophysik; Gamma-Ray Bursts; AGADE.

Ural Federal University, Yekaterinburg: CAS-Theorie.

Schweden

Chalmers University of Technology, Onsala Space Observatory, Göteborg: CAS-Beobachtungen.

University Lund/Observatory: OPTIMA.

Schweiz

CERN, Genf: CAST.

ETH Zürich: ERIS; CAS-Beobachtungen.

Observatoire de Genève Sauverny, Genf: ISDC/INTEGRAL; Nukleare Astrophysik; EUCLID.

Universität Basel: Nukleare Astrophysik.

University of Geneva: ATHENA.

University of Zurich: Infrared Dark Clouds.

South Korea

Korea Astronomy and Space Science Institute, Daejeon: CAS-Beobachtungen.

Spanien

Centro de Investigaciones Energeticas, Medioambientales y Tecnologicas: DES.

Centro de Astrobiologia (CSIC/INTA), Madrid: CAS-Labormessungen.

ESAC, Madrid: XMM-Newton Science Operations Center; INTEGRAL Science Operations Center.

Instituto de Astrofisica de Andalucia, Granada: CAS-Beobachtungen.

Instituto de Ciencias de l’Espai, Cerdanyola del Vallès: CAS-Beobachtungen.

Institut de Fisica d’Altes Energies, Barcelona: DES; EUCLID.

Universität Valencia, Valencia: INTEGRAL-Spektrometer SPI.

Universidad de Zaragoza: CAST.

Observatorio Astronomico de Mallorca: Novae; Kometen.

Observatorio Astronómico Nacional, Madrid: CAS-Beobachtungen.

Taiwan

Academia Sinica Institute of Astronomy and Astrophysics (ASIAA), Taipei: CAS-Theorie; Prime Focus Spectrograph.

National Central University, Chungli: PanSTARRS.

Tschechien

Charles University, Prag: CAS-Beobachtungen.

Türkei

Bogazici University, Istanbul: CAST.

Ungarn

Konkoly Observatory, Budapest: Herschel-PACS; CAS-Beobachtungen.

USA

Argonne National Laboratory, Lemont/Chicago: DES.

Boston University, Boston: CAS-Beobachtungen.

Brookhaven National Laboratory: strahlenharte JFET-Elektronik; strahlenharte Detektoren.

California Inst. of Technology, Pasadena: X-ray Survey; Prime Focus Spectrograph.

CfA, Cambridge: ATHENA WFI; XMM-Newton/Chandra Kalibration.

Clemson University, Clemson: Gamma-Ray Bursts; Nukleare Astrophysik; CAS-Theorie.

Fermilab, Batavia: DES.

Harvard University, Cambridge: PanSTARRS.

Harvard-Smithsonian Center for Astrophysics, Cambridge: CAS-Beobachtungen, CAS-Labormessungen, CAS-Theorie.

Haystack Observatory, Massachusetts Institute of Technology, Westford: CAS-Theorie.

Institute for Astronomy, Hawaii, Honolulu: Galaxienentstehung; PanSTARRS; NIR Kamera für Wendelstein.

Jet Propulsion Laboratory, Pasadena: EUCLID; CAS-Beobachtungen; Prime Focus Spectrograph.

Johns Hopkins University: PanSTARRS; Prime Focus Spectrograph.

Marshall Space Flight Center, Huntsville: Fermi Gamma-Ray Burst Monitor; XMM-Newton und Chandra Beobachtungen von Neutronensternen, Pulsaren und Supernovaüberresten.

MIT, Cambridge: ATHENA WFI.

National Center for Supercomputing Applications, Urbana: CAS-Beobachtungen.

NASA/Ames Research Center, Mofett Field (CA): MHD shocks.

NASA/Goddard Space Flight Center, Greenbelt, MD: INTEGRAL-Spektrometer SPI; Swift; CAS-Theorie; CAS-Beobachtungen.

National Radio Astronomy Observatory, Charlottesville: CAS-Theorie; CAS-Beobachtungen.

National Radio Astronomy Observatory, Socorro, New Mexico: CAS-Beobachtungen.

NOAO, Tucson: DES.

Ohio State University, Columbus: DES; LBT.

Pacific Northwest National Laboratory (PNNL), Richland: CAST.

Pennsylvania State University, State College: HETDEX; ATHENA/WFI; Swift.

Princeton University: Prime Focus Spectrograph; CAS-Theorie.

Research Corporation, Tucson: LBT.

Rice University, Houston: CAS-Beobachtungen.

San Jose State University: MHD shocks.

SLAC, Stanford: CAMP; DES; ATHENA.

Smithsonian Astrophysical Observatory, Cambridge: Chandra-LETGS; Röntgendoppelsterne in M31; ATHENA.

Space Telescope Science Institute, Baltimore: Galaxienentstehung; PanSTARRS; Turbulenz; CAS-Obsevationen.

Stanford University: DES, Fermi/LAT; Fermi/GBM.

State University of New York at Fredonia: CAS-Beobachtungen.

Texas A & M University, College Station: DES.

Texas State University, San Marcos: HETDEX.

University of Arizona, Tucson: Kosmische Strahlung; Planetenentstehung; LBT; ARGOS; CAS-Beobachtungen; CAS-Theorie.

University of California, Berkeley: MPG/UCB-Kollaboration; FAST; INTEGRAL-Spektrometer SPI; Superbubbles.

University of California, San Diego: CAS-Beobachtungen.

University of California, Santa Cruz: DES.

University of Chicago: DES; CAS-Beobachtungen.
 University of Colorado, Boulder (Co): Superbubbles.
 University of Florida, Gainesville (Fl): Infrared Dark Clouds.
 University of Illinois at Urbana-Champaign: DES; CAS-Beobachtungen.
 University of Michigan, Ann Arbor: CAS-Beobachtungen.
 University of Oklahoma, Norman: CAS-Beobachtungen.
 University of Pennsylvania, Philadelphia (Pa): DES.
 University of Pittsburgh: Galaxienentstehung.
 University of Texas, Austin: Galaxienentstehung; HETDEX.
 University of Toledo: Galaxienentstehung; CAS-Beobachtungen.
 University of Virginia, Charlottesville: CAS-Beobachtungen, CAS-Theorie.
 Yale University, New Haven: CAS-Beobachtungen.

7.3 Multinationale Projekte

ARGOS – Laserleitstern für das LBT: Arcetri Observatory, Italy; AIP, LSW Heidelberg, MPIA, MPIFR, Deutschland; University of Arizona, USA.

ASPI – The International Wave Consortium: CNR-IFSI Frascati, Italy; LPCE/CNRS Orleans, France; Dept. of Automatic Control and Systems University of Sheffield, UK.

ATHENA – Advanced Telescope for High Energy Astrophysics: Dänemarks Technische Universität, Dänemark; Nikolaus Kopernikus Astronomical Center, Polen; Universität Wien, Österreich; IWF, Graz; INAF Italy, Italy; CEA Frankreich, Frankreich; University of Leicester, Open University, UK; Institut für Astronomie und Astrophysik Tübingen, Erlangen Centre for Astroparticle Physics (ECAP), Deutschland; ESA; NOA, Greece; Universität Geneva, Schweiz; Institute for Astrophysics, Portugal.

BOSS – Baryon Oscillation Spectroscopic Survey: Carnegie Mellon University (CMU), University of Colorado Boulder, Harvard-Smithsonian Center for Astrophysics Participation Group, Johns Hopkins University, New Mexico State University, New York University, The Ohio State University, Pennsylvania State University, University of Utah, University of Wisconsin, Yale University, USA; Kavli Institute for the Physics and Mathematics of the Universe, Japan; Max-Planck-Institut fuer Astrophysik (MPA Garching), Max-Planck-Institut für extraterrestrische Physik (MPE), Max-Planck-Institut für Astronomie (MPIA Heidelberg), Deutschland; National Astronomical Observatories of China, Shanghai Astronomical Observatory, China; United Kingdom Participation Group, University of Portsmouth, UK.

Chandra: Marshall Space Flight Center Huntsville, Massachusetts Institute of Technology Cambridge, Smithsonian Astrophysical Observatory Cambridge, USA; Space Research Institute Utrecht, The Netherlands; Universität Hamburg, Deutschland.

COSMOS – Cosmological Evolution Survey: INAF-Osservatorio Astronomico di Bologna, INAF-Osservatorio Astronomico di Roma, INAF-Osservatorio Astrofisico di Arcetri, INAF/IASF-CNR, Sezione di Milano, IRA-INAF, Bologna, Dipartimento di Astronomia, Università Padova, Dipartimento di Fisica, Università degli Studi Roma Tre, Italy; Harvard-Smithsonian Centre for Astrophysics, Cambridge, Dept. of Physics, Carnegie Mellon University, Pittsburg, Institute for Astronomy, University of Hawaii, California Institute of Technology, Pasadena, Dept. of Astronomy, Yale University, USA; INTEGRAL Science Data Centre, Versoix, Switzerland; Laboratoire d’Astrophysique de Marseille, France.

DES – Dark Energy Survey: LMU München, Excellence Cluster Universe, Deutschland; The Fermi National Accelerator Laboratory (Fermilab), University of Chicago, NOAO, University of Michigan, University of Pennsylvania, University of Illinois at Urbana-Champaign, Ohio State University, Texas A&M University, University of California Santa Cruz, Stanford University, SLAC National Accelerator Laboratory, The Lawrence Berkeley National Laboratory, Argonne National Laboratory, USA; University College London, University of Cambridge, University of Edinburgh, University of Portsmouth, University of Sussex, University of Nottingham, UK; Observatorio Nacional, Centro Brasileiro de Pesquisas Físicas, Universidade Federal do Rio, Brasilien; Instituto de Ciencias dei Espacio, Institut de Física d’Altes Energies, Centro de Investigaciones Energeticas Medioambientales y Tecnológicas, Spain.

eBOSS – SDSS-IV Extended Baryon Oscillation Spectroscopic Survey: Carnegie Mellon University (CMU), University of Colorado Boulder, Harvard-Smithsonian Center for Astrophysics Participation Group, Johns Hopkins University, New Mexico State University, New York University, The Ohio State University, Pennsylvania State University, University of Utah, University of Wisconsin, Yale University, USA; Kavli Institute for the Physics and Mathematics of the Universe, Japan; Max-Planck-Institut fuer Astrophysik (MPA Garching), Max-Planck-Institut für extraterrestrische Physik (MPE), Max-Planck-Institut für Astronomie (MPIA Heidelberg), Deutschland; National Astronomical Observatories of China, Shanghai Astronomical Observatory, China; United Kingdom Participation Group, University of Portsmouth, UK.

ERIS – Enhanced Resolution Imager and Spectrograph for the VLT: ESO, Deutschland; ETH Zürich, Switzerland; INAF Arcetri (with OAA, OATe and OAPd), Italy; UKATC Edinburgh, Scotland; NOVA Leiden, The Netherlands. eROSITA - extended Roentgen Survey with an Imaging Telescope Array: AIP Potsdam, Universität Tübingen, Universität Bonn, Universität Erlangen, Universität Hamburg, Remeis-Sternwarte Bamberg, MPA Garching, LMU (USM) München, Deutschland; IKI Moskau, Russia.

eROSITA – extended ROentgen Survey with an Imaging Telescope Array: AIP Potsdam, Universität Bonn, Universität Erlangen, Universität Tübingen, Universität Hamburg, Remeis-Sternwarte Bamberg, MPA Garching, Deutschland; IKI Moskau, Russia.

EUCLID – ESA Mission to map the Dark Energy: ESA; CEA Saclay, LAM, France; University Bologna, INAF, Italy; MSSL, Durham University, UKATC UK; STScI, USA; MPIA Heidelberg, Universität Bonn, Deutschland. Fermi/GBM - Fermi Gamma-Ray Burst Monitor: Marshall Space Flight Center Huntsville, University of Huntsville, USA.

Fermi/LAT – Fermi Gamma-Ray Large Area Space Telescope: Stanford University Palo Alto, Naval Research Laboratory Washington DC, Sonoma State University Rohnert Park, Lockheed Martin Corporation Palo Alto, University of California Santa Cruz, University of Chicago, University of Maryland Greenbelt, NASA Ames Research Center Moffett Field, NASA Goddard Space Flight Center for High Energy Astrophysics Greenbelt, Boston University, University of Utah Salt Lake City, University of Washington Seattle, SLAC Particle Astrophysics Group Palo Alto, USA; ICTP and INFN Trieste, Istituto Nazionale di Fisica Nucleare Trieste, Italy; University of Tokyo, Japan; CEA Saclay, France.

GRAVITY – Instrument for VLT Interferometry: MPIA Heidelberg, Universität Köln, ESO, Garching, Deutschland; SIM Lissabon und Porto, Portugal; IPAG, Grenoble, Observatoire de Paris / Meudon (LESIA), France.

HETDEX – Hobby-Eberly Telescope Dark Energy Experiment: University of Texas, Austin, Pennsylvania State University, Texas A&M University, USA; AIP Potsdam, LMU, USM, Deutschland.

INTAS – Cooperation of Western and Eastern European Scientists: France, Deutschland, Norway, Russia.

ISDC – INTEGRAL Science Data Centre: Observatoire de Geneva Sauverny, Switzerland; Service d’Astrophysique Centre d’Etudes de Saclay, France; Rutherford Appleton Laborato-

ry Oxon Dept. of Physics University Southampton, Deutschland; Danish Space Research Institute Lyngby, Denmark; University College Dublin, Ireland; Istituto di Fisica Milano, Istituto di Astrofisica Spaziale Frascati, Italy; N. Copernicus Astronomical Center Warsaw, Poland; Space Research Institute of the Russian Academy of Sciences Moscow, Russia; Laboratory for High Energy Astrophysics GSFC Greenbelt, USA.

INTEGRAL-Spectrometer SPI: Centre d'Etude Spatiale des Rayonnements (CESR) Toulouse, CEA Saclay Gif-sur-Yvette, France; University de Valencia Burjassot, Spain.

LBT – Large Binocular Telescope Project: MPIA Heidelberg, MPIfR Bonn, Landessternwarte Heidelberg Königstuhl, AIP, Deutschland; University of Arizona, Tucson, Ohio State University, Columbus, Research Corporation, USA; INAF, Italy.

LUCI (Instrument for LBT): LSW Heidelberg, Max-Planck-Institut für Astronomie, Universität Bochum, Deutschland.

MICADO – Multi-Adaptive Optics Imaging Camera for Deep Observations: LMU (USM), MPIA Heidelberg, IFA Göttingen, Deutschland; INAF-OAPD Padova, Italy; A* (an Austrian partnership comprising the University of Vienna, the University of Innsbruck, the University of Graz, and the University of Linz (with RICAM Linz); specific contributions to MICADO come from Vienna/Innsbruck/Linz), Austria; NOVA (a federation several astronomical institutes; specific contributions to MICADO come from the University of Groningen), the University of Leiden, and the NOVA optical/ infrared instrumentation group based at ASTRON in Dwingeloo), The Netherlands; CNRS/INSU (representing LESIA, GEPI and IPAG), Paris, France.

MXT – Microchannel X-Ray Telescope for Gamma-Ray Bursts: CEA, Saclay, France; University of Leicester, UK. OPTIMA: AIP, MPI für Astrophysik, Universität Hamburg, Deutschland; University of Crete, Greece; University Zielona Gora, Poland; University Lund/Observatory, Schweden.

PanSTARRS – Panoramic Survey Telescope & Rapid Response System: MPIA Heidelberg, Deutschland, University of Hawaii, Harvard University, Johns Hopkins Univ. Baltimore, MD, USA; Universities of Durham, Edinburgh, Belfast, UK.

PFS – The Subaru Prime Focus Spectrograph Collaboration: California Institute of Technology, NASA Jet Propulsion Laboratory, Princeton University, Johns Hopkins University, USA; Kavli Institute for the Physics and Mathematics of the Universe, The University of Tokyo Institutes for Advanced Study (UTIAS), University of Tokyo, National Astronomical Observatory of Japan, Academia Sinica, Japan; Institute of Astronomy and Astrophysics (ASIAA), Taiwan; Laboratoire d'Astrophysique de Marseille, France; Brazilian Consortium: IAG Universidad de Sao Paulo, Laboratorio Nacional de Astrofisica, Brazil; Max-Planck Society, Max-Planck-Institut für Astrophysik (MPA, Garching), Max-Planck-Institut für extraterrestrische Physik (MPE), Deutschland; Chinese Consortium: Shanghai Jiao Tong University, National Astronomical Observatories of China, Tsinghua University, The University of Science and Technology of China, Xiamen University, Peking University, China.

SDSS – Sloan Digital Sky Survey: MPA Garching, MPIA Heidelberg, Deutschland; Univ. of Washington, Seattle, Fermi National Accelerator Laboratory, Batavia, University of Michigan, Ann Arbor, Carnegie Mellon University, Pittsburgh, Pennsylvania State University, University Park, Princeton University Observatory, Princeton, The Institute of Advanced Study Princeton, Space Telescope Science Institute, Baltimore, Johns Hopkins Univ. Baltimore, USA. Swift - Gamma-Ray Burst Mission: NASA/GSFC Greenbelt, Pennsylvania State University, USA; University of Leicester, Mullard Space Science Laboratory London, UK; Osservatorio Astronomico Brera, Italy.

XMM-Newton/SSC (Survey Science Center): AIP, Institut für Astronomie und Astrophysik Tübingen, Deutschland; SAP Saclay, CDS Strasbourg, CESR Toulouse, France;

University of Leicester, Institute of Astronomy Cambridge, MSSL London, UK. XMM-Newton/EPIC (European Photo Imaging Camera): SAP Saclay, IAS Orsay, CESR Toulouse, France; University of Leicester, University Birmingham, UK; CNR Mailand-Palermo-Bologna-Frascati, Osservatorio Astronomico Mailand, Italy.

7.4 Projekte mit der Industrie

3d shape GmbH, Erlangen: Messtechnik für „slumped glass“ Spiegelstudien.

4D Engineering, Gilching, Deutschland: Softwareentwicklung für GRAVITY.

ABN GmbH, Neuried: Betreuung der Testanlage PANTER.

Absolut-System, Seyssinet-Pariset, France: 40K Kühlsystem für MICADO.

AC Tech GmbH, Freiberg: ERIS Konus.

ACM GmbH, Naumburg - Acktar Ltd., Kiryat-Gat, Isreal: Schwärzen für EUCLID und ERIS.

af inventions, Braunschweig: FPGA-Programmierung for eROSITA.

Airbus Defense and Space, München: EUCLID Design-Studie; eROSITA.

Array Electronics, Egmanting: DAQ Entwicklung für OPTIMA.

Bach Research, Boulder, USA: Hochauflösende Gitter für ERIS.

BASF Coatings AG, Münster: Untersuchung der Streueigenschaften von Mikropartikeln.

Bräuninger & Konstruktionen, Neuried: Konstruktion und Herstellung von Labor-Ausrüstung.

BRUNSON - VMT GmbH, Bruchsal: Optische Geräte und Zubehör.

Buchberger GmbH, Tuchenbach: Fertigung Strukturteile für PANTER-Manipulatoren; ERIS Teleskop-Flange.

Christian Rehm - ISKON, Isen: Design und mechanische Herstellung.

CryoVac GmbH, Troisdorf: MICADO Kryostatstudien.

Dico-Solutions, München: Elektronikentwicklung für eROSITA.

ECM Engineered Ceramic Materials GmbH, Moosinning: Hersteller von CESIC.

EATON Powering Business Worldwide, Camarillo, CA, USA: Aktuator Trennmuttern für eROSITA.

ESL GmbH, Berlin: Fertigung von Leiterplatten.

Fraunhofer IOF, Jena: Spiegelenwicklung für MICADO.

Freyer GmbH, Tübingen: PANTER.

GEWO Feinmechanik GmbH, Wörth/Hörlkofen: Mechanische Fertigung; ERIS.

Gräfe Spezialoptik GmbH, Camburg: Zerodur-Materialbearbeitung und -Lieferant.

Hans Englett OHG, Berlin: Fertigung von Frontplatten und Meßvorrichtungen.

Hochschule München, Laserlabor, Prof. Heinz Huber, München: Materialbearbeitung mit Ultrakurzpulsarlasern.

Ingenieurbüro Buttler, Essen: Front-End Elektronikentwicklung (ATHENA, eROSITA).

Ingenieurbüro Josef Eder, Hilgertshausen: Systementwicklung for eROSITA; ATHENA; ERIS.

Ingenieurbüro Weisz, München: Design und mechanische Entwicklung für ERIS und MICADO.

Kampf Telescope Optics (KTO), München: Design & Systementwicklung für MICADO.
 KAON GmbH, München: Beratung für kryogene Systeme.
 Kinkele GmbH & Co. KG, Ochsenfurt: ERIS Struktur.
 Korth Kristalle GmbH, Kiel: Linsen für ERIS Spektrometer.
 LT Ultra, Herdwanen-Schönach: Spiegelhersteller.
 M-Industrieverpackung GmbH, Sulzemoos: ERIS Transportcontainer.
 OHB System AG, München; EUCLID Designstudien.
 Peter Feckl Maschinenbau GmbH, Forstern: Mechanische Fertigung; ERIS.
 Sacher Lasertechnik, Marburg: Metrology Laser for GRAVITY.
 Safran Reosc, Saint-Pierre-du-Perray, France: Spiegelentwicklung für MICADO.

8 Veröffentlichungen

8.1 In Zeitschriften und Büchern

- Abbott, T.M.C., F.B. Abdalla, A. Alarcon, ..., D. Gruen, ..., J. Weller, et al.: Dark Energy Survey year 1 results: Cosmological constraints from galaxy clustering and weak lensing. *Physical Review D* 98, 043526 (2018).
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8.3 Konferenzbeiträge

Im Jahr 2018 waren MPE Wissenschaftler als Autoren bei 4 referierten und bei 50 nicht-referierten Konferenzbeiträgen beteiligt, davon mit 27 Erstautorschaften. Die vollständige Liste der Konferenzbeiträge kann auf der MPE Internetseite (<http://www.mpe.mpg.de>) unter dem Punkt „Forschung/Veröffentlichungen“ eingesehen werden.

8.4 Populärwissenschaftliche und sonstige Veröffentlichungen

Förster Schreiber, N.M., D. Wilman, E. Wisnioski, M. Fossati, J.T. Mendel, R. Bender, R. Genzel, A. Beifiori, S. Belli, G. Brammer, A. Burkert, J. Chan, R.I. Davies, R.L. Davies, M. Fabricius, A. Galametz, Herrera-Camus, R., P. Lang, D. Lutz, I. Momcheva, T. Naab, E.J. Nelson, S.H. Price, A. Renzini, R. Saglia, S. Seitz, T. Shimizu, A. Sternberg, L.J. Tacconi, K.-i. Tadaki, H. Übler, P.G. van Dokkum and S. Wuyts: Witnessing the Early Growth and Life Cycle of Galaxies with KMOS^{3D}. *The Messenger*, 174, 28-33 (2018).

Müller, T. : Ein Wanderfalke im Königreich Ryugu. *Sterne und Weltraum* 7, 34-38 (2018).

Müller, T.: Haumea: Überraschung mit Ring. *Regiomontanusbote* 1, 11-14 (2018).

8.5 Vorträge, Astronomische Telegramme und Zirkulare, Poster

Mitarbeiter des MPE hielten im Jahr 2018 insgesamt 332 Vorträge auf Konferenzen, bei Seminaren und Kolloquien und in der Öffentlichkeitsarbeit im In- und Ausland. Zusätzlich haben sie an insgesamt 88 astronomischen Telegrammen, Zirkularen und Datenkatalogen mitgewirkt und 28 Poster als Erstautoren auf Konferenzen präsentiert. Die Zahlen, verteilt auf die einzelnen Arbeitsbereiche, sind in Tabelle 1 gelistet. Die Zahlen in Klammern geben die eingeladenen Vorträge (bei Konferenzen und zu Kolloquien) an, sowie die Zahl der Erstautorschaften bei Telegrammen und Zirkularen.

Tabelle 1: Vorträge, Telegramme/Zirkulare und Poster

Arbeitsgruppe	Vorträge	Telegramme, Zirkulare	Poster
Infrarot-/Submillimeter-Astronomie	128 (88)	8 (1)	7
Optische & Interpretative Astronomie	27 (13)	5 (1)	4
Hochenergieastrophysik	126 (90)	68 (21)	4
Zentrum Astrochemische Studien	51 (26)	7 (1)	13
Unabhängige Forschungsgruppen	0 (0)	0 (0)	0

Die vollständige Liste der Vorträge, der astronomischen Telegramme und Zirkulare sowie der Poster kann auf der MPE Internetseite (<http://www.mpe.mpg.de>) unter dem Punkt „Forschung/Veröffentlichungen“ eingesehen werden.

9 Öffentlichkeitsarbeit

Das MPE engagierte sich auch in der Öffentlichkeitsarbeit. Im Jahr 2018 hielten MPE-Wissenschaftler 25 populärwissenschaftliche Vorträge (z.B. an Schulen, Planetarien, bei Astronomischen Vereinigungen). Bei 21 Institutsführungen gewannen Gruppen, hauptsächlich Schulklassen von naturwissenschaftlich orientierten Schulen, einen Einblick in das Institut und seine Wissenschaft. Am „Girls’ Day“ informierten sich 45 Mädchen über das MPE, 12 Schüler/innen erhielten in ein- oder zweiwöchigen Praktika und 2 Hochschüler in mehrwöchigen Praktika einen Einblick in die Arbeitswelt von Astrophysikern.

Weitere Informationen zur Öffentlichkeitsarbeit sind auf den MPE Webseiten zu finden (<http://www.mpe.mpg.de/>).

Paola Caselli