

# Garching

## Max-Planck-Institut für Astrophysik

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### 0 Allgemeines

#### 0.1 Kurzgeschichte

Das 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, das MPI für Astrophysik und das MPI für extraterrestrische Physik.

### 1 Personal und Ausstattung

#### 1.1 Personalstand

*Direktoren und Professoren:*

W. Hillebrandt [-2200], R. Sunyaev [-2244], S.D.M. White [-2211] (Geschäftsführung).

*Auswärtige Wissenschaftliche Mitglieder:*

R. Giacconi, R.-P. Kudritzki, W. Tscharnuter.

*Emeritierte Wissenschaftliche Mitglieder:*

H. Billing, R. Kippenhahn, F. Meyer, H.U. Schmidt, E. Trefftz.

*Wissenschaftliche Mitarbeiter:*

M.A. Aloy (bis 15.12.), A.J. Banday, J. Ballot, J. Blaizot, G. Börner (bis 30.4.), J. Bolton (seit 1.10.), J. Braithwaite (bis 31.8.), P. Cerda-Duran (seit 1.10.), J. Chluba, B. Ciardi, E. Churazov, R. Collet (seit 1.10.), G. De Lucia, N. De la Rosa (seit 1.12.), H. Dimmelmeier, K. Dolag, T. Enßlin, D. Gadotti, D. Giannios, M. Gilfanov, B. Groves (bis 31.10.), E. Hayashi, H.-T. Janka, G. Kauffmann, K. Kifonidis, F. Kupka, L.X. Li, A. Maselli, P. Mazzali, Z. Meliani (bis 20.3.), B. Metcalf (seit 15.9.), A. Mizuta (bis 30.10.) A. Merloni, O. Möller, T. Morris (bis 15.8.), E. Müller, R. Oechslin, E. Olsson (seit 1.9.), B. Panter (bis 30.9.), A. Pastorello (bis 31.5.), M. Revnivtsev, H. Ritter, F. Röpke, M. Ruszkowski (seit 1.6.) H. Sandvik, D. Sauer (seit 1.9.), S. Sazonov, C. Scannapieco (seit 1.9.), S. Sim, V. Springel, H.C. Spruit, A. Watts, A. Weiss, V. Wild.

*Alexander von Humboldt Stipendiaten:*

P. Madau (seit 1.8.), J. Navarro (1.5.–30.6.), S. Tremaine (1.7.–31.12.)

*Doktoranden:*

A. Bauswein (seit 1.11.), R. Birkel (seit 1.6.), M. Frommert (seit 1.6.), N. Hammer, S. Hilbert, J. Jasche (seit 15.10.), M. Kromer (seit 1.9.), T. Mädler (seit 1.4.), R. Moll (seit 1.10.), B. Müller (seit 1.1.), M. Obergaulinger, L. Scheck (bis 30.9.), S. Taubenberger, A. Waelkens (seit 1.1.), L. Wang B. Zink (bis 31.8.), M. Vogelsberger (seit 1.9.)

*IMPRS Doktoranden*

A. Arcones, M. Baldi, A. Bogdan (seit 1.9.), S. Bonoli (seit 1.9.), M.A. Campisi (seit 1.9.), M. Carrasco-Kind (seit 1.9.), J. Cuadra (bis 31.10.), C. D'Angelo (seit 1.9.), E. Donoso (seit 1.9.), D. Docenko, A. Gallazzi (bis 30.9.), M. Grossi (seit 1.9.), G. Hütsi (bis 30.9.), T. Jaffe (bis 31.10.), P. Jofre-Pfeil (seit 1.9.), F. Kitaura, A. Kitsikis, M. Kitzbichler, U. Maio, A. Marek, M. Mocak, M. Petkova (seit 1.9.), M. Pierleoni (seit 1.9.), G. Qi (seit 1.3.), P. Rebusco, M. Righi, D. Sijacki, A. von der Linden, R. Voss, J. Wang, F. Xiang

*Diplomanden:*

R. Birkel (bis 30.5.), J. Donnert (seit 1.10.), M. Fink (bis 30.12.), Q. Guo (bis 28.2.), S. Hachinger (seit 1.3.), J. Jasche (bis 15.10.), I. Maurer (seit 1.9.), B. Möbis (seit 1.12.), R. Pakmor (bis 31.12.),

*Sekretariat und Verwaltung:*

C. Rickl [Sekr. Geschäftsführung, -2201]

M. Ihle [Verwaltungsleiter, -3600]

## 1.2 Personelle Veränderungen

B. Ciardi: W2 Position im Rahmen des W2 Sonderprogramms für Frauenförderung der MPG.

T.A. Enßlin: Dauerstelle am MPA.

G. Kauffmann erhielt den **Leibniz Prize 2007**, (eine Auszeichnung mit dem höchstdotierten deutschen Förderpreis). Sie untersucht die Entwicklung von Galaxien unter Verwendung von umfangreichen Beobachtungen des Sternenhimmels.

M. Revnivtsev erhielt die "Zeldovich Medaille COSPAR" von der Russischen Akademie der Wissenschaften.

M. Revnivtsev: Habilitiert in Moskau mit dem Thema "Sky surveys with INTEGRAL and RXTE observatories: origin of the background X-ray emission of the Galaxy and the nature of variability of emission of black holes and neutron stars"

## 1.3 Gebäude und Bibliothek

Die Bibliothek befindet sich im Astrogebäude und wird von Wissenschaftlern zweier Institute genutzt, das Max-Planck-Institut für Astrophysik und extraterrestrische Physik. Die Bibliothek besitzt aktuell ca. 20.000 Bücher und Konferenzproceedings, sowie Abonnements für 200 wissenschaftliche Zeitschriften. Ein neues System (Edoc-Server) für elektronische Publikationen wurde vor 3 Jahren in der Bibliothek eingeführt.

## 2 Gäste

Petr Baklanov (ITEP, Moskau) 28.6.–27.7.; Isabelle Baraffe (Lyon, Frankreich) 22.10.–21.11.; Serena Bertone (Univ. of Sussex, UK) 7.3.–28.3.; Maria Paola Bottino (Universität Mailand) 06.06. – 08.09.; Sergey Blinnikov (ITEP Moskau) 20.6.–31.7.; Carlos Bornancini (Obs. Astr. de Cordoba, AR) 20.10.–21.12.; Carmelita Carbone (SISSA, Italien) 13.3.–28.4.; 1.10.–31.12.; Carlos Cardenas (Santiago, Chile) 04.09.–18.09.; Matias Carrasco-Kind (Univ. Catolica de Chile) 9.1.–8.6.; Gilles Chabrier (Lyon, Frankreich) 22.10.–21.10.; Rui-xiang Chang (Shanghai Observatorium) seit 15.11.; Emilia de Rossi (Conicet, Argentinien) 1.10.–15.12.; Jonathan Dursi (CITA, Toronto, Kanada) 1.11.–30.11.; Celine Eminian (Univ. of Sussex, U.K.) 1.11 – 22.12.; Jason Ferguson (Wichita State Univ., Kansas) 24.5.–18.7.; Stanislav Gunar (Astr. Inst. Ondrejov, Tschechei) 15.1.–14.4.; Luigi Guzzo (INAF Brera, Italien) 1.10.–31.12.; Jake Hartman (MIT) 04.09.–22.09.; Nail Inogamov (Landau Inst., Moskau) 14.10.–14.12.; Natasha Ivanova (CITA, Kanada) 8.11.–2.12.; Patrik Jonsson (Ucolick Obs., USA) 22.9.–21.10.; Chiaki Kobayashi (Astron. Obs. of Japan) 24.2.–23.3.; Roman Krivonos (HEA Dept., Moskau) 22.3.–15.6.; 4.10.–28.11.; Jounghun Lee (Seoul Univ, Korea) 1.7.–19.8.; Cheng Li (Hefei, China) 1.1 – 20.5.; Malcolm Longair (Carverdish Lab., England) 16.10.–15.12.; Alexander Lutovinov (HEA Dept. Moskau) 22.10.–25.11.; Patryk Mach (Cracow Universität, Polen) seit 6.10.; Rubens Machado (Universität São Paulo) seit 11.9.; Keiichi Maeda (Universität Tokyo) 2.8.–20.8.; Matteo Maturi (Universität Padova, ITA Heidelberg) 1.4.–30.6.; Marcello M. Miller Bertolami (La Plata Universität, Argentinien) 19.1.–19.7.; Petar Mimica (Universität Valencia) 27.9.–17.10.; Sergey Molkov (HEA Dept. Moskau) 12.1.–11.6.; Alessia Moretti (Padova, Italien) 1.1. – 30.3.; Dimitij Nadyozhin (ITEP Moskau) 2.3.–2.5.; Julio Navarro (Universität Victoria, Canada) 1.5.–30.6.; Sergey Nayakshin (Universität Leicester, England) 27.3.–26.4.; Roderik Overzier (Leiden, Holland) 1.8.–30.8.; Maria-Josefa Perez (La Plata Univ., AR) 4.8.–20.12.; Elena Pian (INAF - Trieste Observatorium, Italien) 5.7.–15.8.; Lorenzo Piovan (Padova Universität) 15.3.–15.9.; Juri Poutanen (Universität Oulu, Oulu, Finland) 5.9.–31.10.; Elena Rasia (Padova Universität, Italien) 1.2.–30.4.; Elena Rossi (JILA, Boulder, USA) 15.5.–15.7.; Gregory Rudnick (NOAO Tucson, USA) 17.4.–30.4.; Tokuei Sako (Tokyo, Japan) 03.08.–21.09.; Nikolai Shakura (Sternberg Inst. Moskau) 1.10.–31.10.; Maurizio Salaris (Liverpool John Moore Universität) 6.2.–6.7.; Aldo Serenelli (Inst. f. Advanced Study, Princeton) 2.6.–8.7.; Shiyin Shen (Shanghai Observatorium, China) seit 15.11.; Pavel Shtykovskiy (Space Research Institute, Moskau) 1.3.–29.5 und 22.9.–18.12.; Federico Stasyszyn (Univ. de Cordoba, AR) 22.9.–24.12.; Kandaswamy Subramanian (IUCAA, Pune) 10.10.–21.11.; Masaomi Tanaka (Universität Tokyo) 2.8.–20.8.; Sergey Tolstov (ITEP Moskau) 3.9.–7.10.; M. Topinka (Astron. Inst. Prag) bis 28.2.; Sergey Tsygankov (HEA Dept. Moskau) 4.10.–23.12.; Victor Utrobin (ITEP Moskau) bis 30.1. und 1.10.–30.11.; Sandro Villanova (Padova Universität) 18.5.–1.7.; Rolf Walder (Zürich, Schweiz) 6.11.–20.12.; Huiyuan Wang (Hefei, China) 1.1.–20.5.; Jesus Zavala (Universität Mexico Stadt) 16.2.–30.5.

## 3 Lehrtätigkeit, Prüfungen und Gremientätigkeit

### 3.1 Lehrtätigkeiten

W. Hillebrandt: WS 05/06, WS 06/07, TU München

E. Müller, WS05/06 and SS06, TU München

H. Ritter, WS05/06 and WS06/07 LMU München

A. Weiss, SS 2006, Universität Augsburg

A. Weiss, Herbst, Dartmouth College

### 3.2 Sonstige Kurz-Vorlesungen

G. Börner: “Cosmology” (Tohoku Univ., Sendai, Japan, 2.10.–30.11.)

T.A. Ensslin: “Cosmic Microwave Background” (IMPRS on Astrophysics, LMU München, 3.4.–7.4.)

M.Gilfanov: “X-ray binaries” (Sabanci University, Istanbul, Turkey, 11.9.–14.9.)

W. Hillebrandt: Nuclei in the Cosmos-IX Summer School; CERN, Geneva, Schweiz (19. 6. – 24. 6.)

H.-Th. Janka: “Neutrinos and the Stars” (ISAPP 2006, MPP München, 29.5.–31.5.)

E. Müller: “Supernovae and gravitational waves” (Univ. Paris VI, 21.11.–22.11.)

P. Rebusco “Multiple scales in General Relativity” (Chalmers University, Göteborg, Schweden, 18.4.–22.4.)

V. Springel: “Computational Cosmology”, LENAC Advanced School of Astrophysics (Foz do Iguacu, Brasilien, 6.-12.4.)

– “The large-scale structure of the Universe”, DFG/SPP Sommerschule (Bad Honnef, 2.-7.7.)

– “Numerical simulation methods”, Helmholtz-Institute Sommerschule (AIP Potsdam, 31.7.-4.8.)

– “IMPRS Fortgeschrittene IF”, Numerical Cosmology (Garching, 27.11.-1.12.)

### 3.3 Prüfungen

Es wurden 8 Diplomprüfungen im Wahlfach Astrophysik und 15 Promotionsprüfungen abgenommen.

### 3.4 Gremientätigkeit

T. Banday: – Mitglied von IDIS Arbeitsgruppe für das ESA-Planck Satellit Projekt

– Planck Koordinator für die Technische Arbeitsgruppe (WT 1.7) on “Methods for detection of systematics”

– Planck Koordinator für die Technische Arbeitsgruppe (WT 4.1) on “Effect of systematics on Non-Gaussianity”

– Planck Teilkoordinator (WT 5.5.4 ) on the “Integrated Sachs-Wolfe Effect”

– Planck Koordinator für die Technische Arbeitsgruppe (WT 8) on “Planck and the Virtual Observatory”

– Planck Koordinator für die Technische Arbeitsgruppe (WT 7.4) on “Simulation and analysis tools for polarised galactic emission”

– Mitorganisator des EU TMR Netzwerks CMBNet working group on “Large data set analyses”

– Mitglied des advisory panel von NASA’s CMB Data Center, the Legacy Archive for Microwave Background Data Analysis (LAMBDA)

E. Churazov: – Mitglied der INTEGRAL Projekt Gruppe

B. Ciardi: – Vorsitzende der wissenschaftlichen Arbeitsgruppe von GLOW Konsortium (German Long Wavelength)

– Projektmanagerin für die Entstehung und Platzierung von LOFAR (Radioteleskop Station am MPA)

T.A. Enßlin: – Mitglied des “Planck-IDIS Development Team”

– Mitglied des “AstroGrid-D Steuerungsausschuss”

M.Gilfanov: – INTEGRAL Observatory, Zeiteinteilungskomitee, ESA

– Chandra Observatory, Zeiteinteilungskomitee

– Chandra Observatory, Projektausschuss

W. Hillebrandt: – Projektkoordinator, Netzwerk “The Physics of Type Ia Supernovae”

– Vorsitzender von Supernova Arbeitsgruppe, IAU, Commission VIII

– Fachbeirat, MPI für Gravitationsphysik (Albert Einstein Institut), Golm

– Vorsitzender, Beirat des Rechenzentrums Garching

- Stellvertretender Sprecher des Sonderforschungsbereich 375 “Astro-Teilchen Physik” (TU)
- Mitherausgeber, Lecture Notes in Physics
- Mitglied, DFG Senat Komitee on Collaborative Research Centres

H.-Th. Janka: – Mitglied des “SciDAC Advisory Committee”

- G. Kauffmann: – Mitglied der “Joint Astrophysics Colloquium Committee
- Vorsitzende des Ausschuss, “Spitzer” Zeiteinteilungskomitee

P. Mazzali: RTN on SNe Ia. Wissenschaftlicher Sekretär.

A. Merloni: Gutachter des PPARC MSSL Rolling 2006

- E. Müller: – Vorstandsmitglied des Sonderforschungsbereichs “Transregio Gravitationswellenastronomie”
- Mitglied Benutzerkomitee und Beirat am Rechenzentrum Garching (RZG/IPP)
- Betriebsratvorsitzender am MPA

- H.C. Spruit: – Mitglied des Redaktionsteams, Solar Physics journal,
- Koordinator von Wiss. Aktivitäten JRA3 OPTICON (High Time Resolution Astrophysics)
- Referent des ESO Observing Ausschreibungs Komitee
- Mitglied des Bewerbungskomitee der Königlich Schwedischen Akademie der Wissenschaften.

- R. Sunyaev: – Mitglied des Space Council of Russia Academy of Sciences
- Mitglied des Scientific Council of Russian Space Research Institute (IKI)
- Mitglied der INTEGRAL wissenschaftlichen Arbeitsgruppe und “Russian Project Scientist for INTEGRAL” (ESA project)
- Stellvertretender Vorsitz des SPECTRUM-X space project International Scientific Committee
- Co-I of the HFI instrument of ESA PLANCK SURVEYOR project
- Leiter für Deutschland im TMR Network “CMBNET”
- Mitglied des NOVA International Advisory Board
- Mitglied des Evaluation Committee for SISSA

- A. Weiss: – Mitarbeitervertreter in der CPT-Sektion der MPG (bis Juli 2006).
- Organisationskomitee der Kommission 35 (Stellare Einrichtung) der IAU

- S.D.M. White: – Externes Mitglied des Fachbeirat, Physik Department, Univ. Bonn
- Mitglied des Kuratoriums, Physik Journal
- Mitglied des Beratungsausschuss “Canadian Inst. for Advanced Research, Cosmology and Gravity Program
- Kosmologie Preis, Beratendes Mitglied, Peter Gruber Stiftung
- Mitglied des Advisory Council, Sloan Digital Sky Survey
- Mitglied Garching/München IMPRS Executive Komitee

#### 4 Wissenschaftliche Arbeiten

Für Informationen zu den wissenschaftlichen Arbeiten unseres Instituts, besuchen Sie bitte unsere Webseite unter: <http://www.mpa-garching.mpg.de> und klicken Sie “Über das Institut” und “Jahresberichte” an. Sollten Sie kein Internet haben, können Sie gerne kostenlos einen Jahresbericht unter der Telefon-Nummer 089/30000-2214 anfordern. In unserem Jahresbericht 2006 sind folgende wissenschaftlichen Aktivitäten in englischer Sprache ausführlich beschrieben:

- 4.1 Stellare Physik
- 4.2 Nukleare und Neutrino-Astrophysik
- 4.3 Numerische Hydrodynamik
- 4.4 Hochenergie Astrophysik
- 4.5 Akkretion
- 4.6 Wechselwirkung von Strahlung mit Materie
- 4.7 Galaxienentwicklung und Entwicklung aktiver Galaxienkerne
- 4.8 Großräumige Strukturen, Galaxienhaufen und Intergalaktisches Medium
- 4.9 Gravitationslinseneffekt
- 4.10 Untersuchungen des kosmischen Mikrowellenhintergrunds
- 4.11 Quantenmechanik von Atomen und Molekülen, Astrochemie

## 5 Diplomarbeiten, Dissertationen, Habilitationen

### 5.1 Diplomarbeiten

*Abgeschlossen:*

Michael Fink: Doppelte Detonationen in Sub-Chandrasekhar-Supernova-Modellen. Technische Universität München.

Jens Jasche: "On the coupling between cosmic rays and primordial gas". Leibniz Universität Hannover.

Rüdiger Pakmor: The imprint of the dynamical state on the structure of magnetic fields in simulated galaxy clusters. Technische Universität München.

Ilya Saverchenko: Interacting Galaxies: Matching Simulations to Observations. Technische Universität München.

### 5.2 Dissertationen

*Abgeschlossen:*

Jorge Cuadra-Stipetich: Stars in the Galactic Centre: Sources and Probes of the Accretion Flow. Ludwig-Maximilians-Universität, München.

Anna Gallazzi: Modeling and interpretation of galaxy spectra: the stellar populations of nearby galaxies. Ludwig-Maximilians-Universität, München.

Gert Hütsi: Cosmic sound: Measuring the Universe with baryonic acoustic oscillations. Ludwig-Maximilians-Universität, München.

Tess Jaffe: Morphological Studies of the CMB: Non-standard Models and Foregrounds. Ludwig-Maximilians-Universität, München.

Leonhard Scheck: Parametric Studies of Hydrodynamic Instabilities in the Supernova Core by Two- and Three-Dimensional Simulations. Technische Universität München.

Burkhard Zink: Black hole formation from non-axisymmetric instabilities in quasi-toroidal stars. Ludwig-Maximilians-Universität; München.

*Laufend:*

- A. Arcones: “Nukleosynthese in Supernova-Explosionen massereicher Sterne und Gamma-Blitz-Quellen” Technische Universität, München.
- M. Baldi: “Interactions between Dark Energy and Dark Matter” Ludwig-Maximilians-Universität, München.
- A. Bauswein: “Verschmelzende Neutronensterne und nukleare Zustandsgleichungen und Konsequenzen fuer Elemententstehung” Technische Universität, München.
- A. Bogdan: “Populations of X-ray binaries in nearby galaxies” Ludwig-Maximilians-Universität, München.
- S. Bonoli: “Supermassive Black Holes, Quasars and Galaxy formation” Ludwig-Maximilians-Universität, München.
- M. A. Campisi: “Gamma-Ray Bursts and Cosmology” Ludwig-Maximilians-Universität, München.
- M. Carrasco Kind: “Environmental dependence of LSS properties”, Ludwig-Maximilians-Universität, München.
- C. D’Angelo: “Investigating ordered magnetic fields in black hole accretion disks”, Ludwig-Maximilians-Universität, München.
- D. Docenko: “High Z-Ions in the Hot Astrophysical Plasmas” Ludwig-Maximilians-Universität, München.
- E. Donoso: “Evolution of Radio Galaxies and its Effect on the Galaxy Population” Ludwig-Maximilians-Universität, München.
- M. Frommert: “Constraining Cosmological Scenarios” Ludwig-Maximilians-Universität, München.
- M. Grossi: “Cosmological simulations of non-standard dark energy models as a tool to predict their observational implications”, Ludwig-Maximilians-Universität, München.
- Qi Guo: “Cosmological Semi-Analytical Models” Ludwig-Maximilians-Universität, München.
- N. Hammer: “Axis-free methods for hydrodynamical simulations using spherical grids” Technische Universität, München.
- S. Hilbert: “Gravitational Lensing with the Millennium Run” Ludwig-Maximilians-Universität, München.
- P. Hultsch: “Spektraldiagnostik von Supernovae Ia in den späten Phasen” Ludwig-Maximilians-Universität, München.
- P. Jofre-Pfeil: Bestimmung der Eigenschaften galaktischer Sternpopulationen aus dem Sloan Digital Sky survey. Ludwig-Maximilians-Universität, München.
- F. Kitaura: “Mapping the Cosmological Large Scale Structure” Ludwig-Maximilians-Universität, München.
- A. Kitsikis: “Theoretical AGB and post-AGB Stellar Models for Synthetic Population Studies” Ludwig-Maximilians-Universität, München.
- M. G. Kitzbichler: “Galaxy Formation Modelling in the Millennium Simulation” Ludwig-Maximilians-Universität, München.
- M. Kromer: “Synthetic spectra and lightcurves of type Ia supernovae”, Technische Universität, München.
- T. Mädler: “Simulation of a Rotating Core Collaps in Characteristic Formulation in General Relativity” Technische Universität, München.
- U. Maio: “Simulations of cosmic structure formation” Ludwig-Maximilians-Universität, München.

- R. Moll: “Magnetic Acceleration of Gamma-Ray Bursts”, Universität Amsterdam.
- A. Marek: “Multi-dimensional simulations of core collapse supernovae with different models for neutron star matter and microphysical processes” Technische Universität, München.
- M. Mocak: “An Investigation of Dynamic Phases of Stellar Evolution” Technische Universität, München.
- M. Obergaulinger: “Influence of Magnetic Fields on the Dynamics of Collapsars”, Technische Universität, München.
- M. Petkova: “Implementation of radiative transfer into the cosmological simulation code Gadget”, Ludwig-Maximilians-Universität, München.
- M. Pierleoni: “Lyalpha/continuum radiative transfer: cosmological applications” Ludwig-Maximilians-Universität, München.
- P. Rebusco: “The impact of supermassive black holes in elliptical galaxies and clusters” Ludwig-Maximilians-Universität, München.
- M. Rigbi: “Observational consequences of the chemical elements production in the epoch of reionization of the universe” Ludwig-Maximilians-Universität, München.
- S. Taubenberger: Interpretation of lightcurves and spectra of Type Ia supernovae. Technische Universität München.
- M. Vogelsberger: “Internal structure of dark matter halos” Ludwig-Maximilians-Universität, München.
- A. von der Linden: “Galaxy Evolution from the EDisCS and SDSS Surveys” Ludwig-Maximilians-Universität, München.
- R. Voss: “X-ray binaries in elliptical galaxies” Ludwig-Maximilians-Universität, München.
- A. Waelkens: “Studying MHD turbulence using radio astronomical tools” Ludwig-Maximilians-Universität, München.
- Jie Wang: “Structure formation simulations in various cosmologies”, Ludwig-Maximilians-Universität, München.
- Lan Wang: “Building Halo Occupation Distribution Models for comparison with SDSS data” Peking Universität, China.

## 6 Tagungen, Projekte am Institut und Beobachtungszeiten

- G. Börner, CAS-MPG workshop, Shanghai, (25.9.-29.9.)
- E. Churazov, M. Gilfanov, M. Revnivtsev, S. Sazonov: Workshop “High Energy Astrophysics 2006”, Moskau, Russland (25.12.-27.12.)
- W. Hillebrandt, E. Müller: 13th Workshop on Nuclear Astrophysics (Ringberg Castle, 3.4.-7.4.)
- C. Horowitz, R. Rutledge, et al (incl. H.-Th. Janka): Conference “In Heaven and on Earth 2006: The Nuclear Equation of State in Astrophysics”, (5.7.-7.7)
- G. Kauffmann: IAU Symposium No. 241 “Stellar Populations as Building Blocks of Galaxies” La Palma, Spanien (10.12.-16.12.)
- F. Kupka: Co-chair of the SOC of the IAU Symposium 239 “Convection in Astrophysics” held at the XXVIth IAU General Assembly in Prague, Czech Republic, (21.8.-25.8.).
- M. Mazzali: One Millennium after SN1006, Hangzhou, China, (23.05.-27.05)
- A. Merloni: “Radiation Background from the First Stars, Galaxies and Black Holes” (Univ. of Maryland, USA, 11.10.-13.10.)
- E. Müller: 13th Workshop on “Nuclear Astrophysics”, Ringberg Castle, Lake Tegernsee (3.4.-7.4.)



S. Sazonov (Local Organizing Committee): The 6th INTEGRAL Workshop “The Obscured Universe”, Space Research Institute, Moskau, Russland, (2.7.–8.7)  
 – (Scientific Organizing Committee): Conference “High Energy Astrophysics Today and Tomorrow”, Moskau, Russland, (25.12.–27.12.)

F. P. Winkler, W. Hillebrandt, B. P. Schmidt: Joint Discussion, Supernovae: One Millennium after SN 1006 (IAU General Assembly, Prague, 17. 8 – 18. 8.)

## 6.1 Beobachtungszeiten

E. Churazov: 2006, INTEGRAL observatory, “All sky survey in the hard X-ray energy band”,

S. Heinz (MIT), A. Merloni (MPA), G. Kauffmann (MPA), P. Best (ROE), T. Heckman (JHU), A. Young, D. Chakrabarty, C. Canizares (MIT): *Chandra* Proposal “A snapshot X-ray/radio survey of AGNs selected from the long menu of SDSS galaxies”. Awarded 200 ks and 12 hours of joint VLA time.

P. Hewett (IoA, Cambridge), V. Wild, UKIRT, Mauna Kea, Hawaii, UFTI, Imaging of dusty Damped Lyman alpha systems at  $z \approx 1$  10.4.-13.4.

W. Hillebrandt (PI): Calar Alto, Spanien, 6 nights on the 2.2m telescope, ToO mode, Photometry and spectroscopy of nearby Type Ia Supernovae  
 – ESO, La Silla, Chile, 2.2m Telescope, WIFL, 25 hours, Photometry of nearby Type Ia supernovae

W. Hillebrandt (CoI): NOT, La Palma, 5 nights ToO, Photometry and spectroscopy of nearby Type Ia supernovae  
 – LT, La Palma, 3 nights ToO, Optical and NIR photometry of nearby Type Ia supernova.

P. Mazzali: PI: “Late time spectra of Type Ic Supernovae”, VLT, 21 hrs various programmes as CoI at ESO and Subaru.

K. Nilsson (ESO), Fynbo (DARK, Copenhagen), Moeller (ESO), Moeller (MPA): “Characterising the properties of high-redshift Lyman-alpha emitters in the HDF” at the NOT, La Palma. 20.4.-25.4.

M. Pettini (IoA, Cambridge), V. Wild, P. Hewett (IoA, Cambridge), S. Rao (University of Pittsburgh), WHT, La Palma, ISIS, Characterising the metals and dust abundances of DLAs at  $0.6 < z < 1.2$ , 2.4.-4.4.

## 6.2 Vorträge und Gastaufenthalte

### Übersichtsvorträge

E. Churazov:

– The Fourth Harvard-Smithsonian Conference on Theoretical Astrophysics “The History of Nuclear Black Holes in Galaxies”, (Boston, USA, 15.05.-18.05) – The 6th INTEGRAL Workshop, “The Obscured Universe”, (Moskau, Russland, 2.07.-08.07) – MPA/ESO/MPE/USM Joint Astronomy Conference, “Heating vs. Cooling in Galaxies and Clusters of Galaxies”, (Garching, , 6.08.-11.08) – The 6th Microquasar Workshop, “Microquasars and Beyond”, (Como, Italien, 20.09.-22.09)

B. Ciardi:

– “TIARA Reionization Workshop” (Hsinchu, Taiwan, 13.2.–3.3.) – “TIARA winter school on cosmology” (Hsinchu, Taiwan, 13.2.–17.3.) – “The End of the Dark Ages - From First Light to Reionization” (Baltimore, USA, 13.3.–15.3.) – “IAG-LENAC XIII advanced school of astrophysics” (Foz do Iguazu, Brasilien, 6.4.–12.4.) – “IAU XXVIth General Assembly” (Prague, Czech Republic, 14.8.–25.8.)

G. De Lucia: “Workshop on Massive Galaxies over Cosmic Time II” (Tucson, November 1-3) – “Cosmic Frontiers” (Durham Universität, July 31 - August 4) – “Galaxies and Structures through Cosmic Times” (Venice, March 26 - 31)

H. Dimmelmeier:

Invited Plenary Talk, “Understanding Neutron Stars” Meeting, (Alicante, Spanien, 25.09.-27.09.)

– Invited Plenary Talk, “3rd Annual Meeting of the European Network on Theoretical Astroparticle Physics (ENTApP) ILIAS/N6”, (Paris, Frankreich, 12.12.-14.12.)

T.A. Enßlin: “Long Wavelength Astrophysics”, IAU General Assembly 206 (Prague, 21.8.)

M.Gilfanov: “High Energy Astrophysics - 2006” (Moskau, Russland, 25.12.–28.12.)

W. Hillebrandt: 13th Workshop on Nuclear Astrophysics (Ringberg Castle, 3. 4. – 3. 4.)

– DEISA Symposium, Perspectives in High Performance Computing (Bologna, 4. 5. – 5. 5.)

– From Stars to Galaxies: Building the pieces to build up the Universe (Venice, 16. 10. – 20. 10.)

H.-Th. Janka: “Astrophysics and Nuclear Structure” Workshop (Hirschegg, Austria, 15.01.–21.01.)

– “Supernova and Gamma-Ray Burst Remnants” Workshop (Santa Barbara, USA, 06.02.–10.02.)

– “Nuclear Astrophysics” Workshop (Ringberg Castle, 03.04.–08.04.)

– “Neutrino 2006” Conference (Santa Fe, USA, 13.06.–19.06.)

– “The Obscured Universe” Workshop (Moskau, Russland, 02.07.–08.07.)

– “Core Collapse Supernovae and their Host Galaxies” Workshop (Paris, Frankreich, 02.10.–04.10.)

– “Texas in Australia” Symposium (Melbourne, Australia, 11.12.–15.12.)

G. Kauffmann:

– “The Fourth Harvard-Smithsonian Conference on Theoretical Astrophysics: The History of Nuclear Black Holes in Galaxies, (Cambridge, 15.5.–18.5.)

– “Cosmic Frontiers” (Durham, 31.7.–4.8.)

– “Heating vs. Cooling in Galaxies and Clusters of Galaxies”, (Garching, 6.8.–11.8.)

Th. Mädler: “Moving Fluids on Lightcones with Twisting Axisymmetry” (Valencia, Spanien 4.12.)

P. Mazzali: – “Supernovae and Gamma-Ray Bursts” at the meeting “One Millennium after SN1006”, Hangzhou, China, May 23-27

– “Asphericity in GRB Supernovae” at the conference “Swift and GRBs” Venice, Italien, 5-9 June

– “The connection between Supernovae and GRB/XRF” at the meeting “Triggering Relativistic Jets” Ensenada, Mexico, 1-5 Sept

R.B. Metcalf: Physics Department Colloquium, Universität at North Carolina Chapel Hill, 20.3

O. Moeller: “What can we really learn from lensing? ”, Colloquium, Groningen, 27.2.

E. Müller: Physics Colloquium, Aristoteles Universität (Thessaloniki, Greece, 01.03.)

Invited talk, Workshop on “Gravitational wave data analysis” (Paris, Frankreich, 15.11.)

M. Obergaulinger: “Magnetic fields and MHD instabilities in stellar core collapse“, Nuclear/Particle/ Astrophysics Seminar, Universität Basel (16.11.2006)

P. Rebusco: Gambara High School (Brescia, Italien 7.4.)

M. Ruszkowski: “Review of heating mechanisms in clusters of galaxies“, invited review talk at “Heating vs. Cooling in Galaxies and Clusters of Galaxies“ – MPA/ESO/MPE/USM Joint Astronomy Conference, Garching (6.8. - 11.8)

S. Sazonov: Workshop “The keV to TeV connection”, Rome (17.10.–19.10).

– Conference “High Energy Astrophysics Today and Tomorrow”, Moskau (25.12.–27.12.)

V. Springel: – Harvard-Smithsonian Conference “The History of Nuclear Black Holes in Galaxies” (Cambridge, USA, 15.-18.5.)

- “The Obscured Universe”, 6th INTEGRAL Workshop (Moskau, Russland, 2.-8.7.)
- Invited Review, Session on “The Origins of Massive Black Holes and Quasars at High Redshifts”, 11th Marcel Grossmann Meeting (Berlin, 23.-29.7.)
- “Galaxies, Super-massive Black Holes and the Cosmic Web”, 7th Sino-German Workshop (Shanghai, China, 25.-28.9.)
- “Big Apple Colloquium”, NYU and Columbia University (New York, USA, 8.12.)
- H. Spruit: Review at the Sixth Microquasar workshop (Como, Italien, 20.9.)
- Plenary talk at the 23rd Texas Conference on Relativistic Astrophysics (Melbourne, Australia, 14.12.)
- A. Watts: Invited talk COSPAR Meeting Session 1.3 (Different manifestations of neutron stars) (Beijing, China, 17.07-21.07)
- Invited talk (Special Session on Magnetars), American Astronomical Society High Energy Astrophysics Division Meeting (San Francisco, USA, 04.10-07.10)
- A. Weiss: “From Stars to Galaxies: Building the pieces to build up the Universe“ Conference, (Venezia, Italien, 16.10.–20.10.)
- S. White: Heineman Prize Lecture: AAS meeting, (Washington, 8.1.–13.11.)
- The Millennium Simulation and the Local Group: Aspen winter workshop (Aspen, 5.2.–9.2.)
- Numerical cosmology - recreating the Universe in a supercomputer: Lectures presented at the Bibliotheka Alexandrina, (Alexandria, Egypt, 22.3–30.3.)
- Nonlinear Structure Formation: the growth of galaxies and larger scale structures: Lectures to the IAGUSP/LENAC Summer School, (Foz do Iguacu, Brasil, 6.4.–12.4.)
- Large-scale Structure: Insights from the Millennium Simulation: Review at “Cosmic Frontiers” (Durham, 31.7.–4.8.)
- Feedback and Galaxy Formation: Review at “Heating versus Cooling in Galaxies and Clusters of Galaxies” (Garching, 7.8.–11.8.)
- Lecture to the Gesellschaft deutsche Naturforscher und Aertzte “Alles Aus Nichts: der Ursprung unseres Universums”, (Bremen, 16.9.)
- Large-scale modelling of the evolution of galaxies: From Stars to Galaxies – conference in honour of Cesare Chiosi, (Venice, 16.10.–3.11.)
- Galaxy Growth in a LCDM Universe: Massive Galaxies over Cosmic Time II, (Tucson 28.10.–3.11.)
- Physics and Evolution of Galaxies: Review for “Towards the European ELT”, (Marseille, 27.11.–1.12.)

#### *Kolloquiums Vorträge*

- B. Ciardi: – ETH, Switzerland, 26.1. – ASTRON, 30.3. – Max-Planck-Institut f. Radioastronomie Bonn, 10.5. – Imperial College, England, 3.11. – Bochum, 5.12.
- G. De Lucia: – Osservatorio Astr. di Trieste, 26.4
- Osservatorio Astr. di Bologna, 25.5. – Universität of California, Berkeley, 7.11.
- T.A. Enßlin: Canadian Institute for Theoretical Astrophysics, Toronto, 21.9.
- H.-Th. Janka: – Heidelberg, 02.05. – TUM Garching, 17.05. – Paris, France, 15.11. – TUM Garching, 22.11.
- A. Maselli: SISSA, Italy, 16.3.
- R.B. Metcalf: Physics Department Kolloquium, University of North Carolina Chapel Hill, 20.3.
- O. Moeller: Kolloquium, Groningen, 27.2.
- E. Müller: – Physics Kolloquium, Aristoteles Universität, Thessaloniki, Greece, 01.03. – Ecole Normal Supérieure, Lyon, France, 18.05. – Gesellschaft für Schwerionenforschung, Darmstadt, 11.07. – MPI für Radioastronomie Bonn, 28.09. – Observatoire de Paris Meudon, France, 09.11.

V. Springel: Munich Joint Astronomy Kolloquium, Garching, 16.3. – Physical Kolloquium, Max-Planck-Institute for Physics München, 9.5. – Astrophysical Kolloquium, Marseille, Frankreich, 19.5. – Physical Kolloquium, Universität Münster, 13.7. – Max-Planck-Institute for Mathematics in the Sciences, Leipzig, 18.7. – “Big Apple Kolloquium”, NYU and Columbia Universität, New York, USA, 8.12.

R. Walder: Universität of Pisa/EGO (8.5.)

A. Watts: – Kolloquium, Amsterdam, 27.9. – Kolloquium, SRON Utrecht, 29.9. – Kolloquium, IAAT Tübingen, 11.12.

### 6.3 Kooperationen

E. Müller und H.-Th. Janka vom MPA sind mit zwei Teilprojekten am Sonderforschungsbereich/Transregio 7, “Gravitationswellenastronomie” beteiligt (Verwaltung des SFB in Jena) Der SFB beschäftigt sich hauptsächlich mit der theoretischen Modellierung der kosmischen Quellen der Gravitationsstrahlung, der Verbesserung des Detektorenkonzeptes und der Auswertung der zu erwartenden Gravitationswellensignale. (Beteiligte Institute: Univ. Hannover, Univ. Tübingen, Univ. Jena)

H.-Th. Janka hat in dem neuen Neutrino-Sonderforschungsbereich (TR27) ein Teilprojekt. Der SFB wird vom Physik-Department der TU München verwaltet. Beteiligte Institute sind: Univ. Karlsruhe, Univ. Tübingen, MPI f. Physik München, MPI f. Kernphysik Heidelberg. Nach den jüngsten Erfolgen in der Neutrinophysik greift dieser SFB zentrale Themen, sowohl im Experiment als auch in der Theorie auf.

S. White und W. Hillebrandt sind in dem Transregio TR33 “Dunkles Universum” mit Teilprojekten involviert. Beteiligte Institute sind: Univ. Heidelberg, Univ. Bonn und Ludwig-Maximilians-Univ. München.

G. Börner, H.-Th. Janka, W. Hillebrandt und S. White sind mit einigen Teilprojekten am Sonderforschungsbereich “Astro-Teilchenphysik” (SFB 375) beteiligt. W. Hillebrandt ist stellvertretender Leiter des SFB’s. Aufgabe des SFB’s ist die Forschung auf dem Gebiet der Astro-Teilchenphysik. (Beteiligte Institute: Physik-Department (TU), Sektion der Physik (LMU), Univ. Sternwarte (LMU) und Max-Planck-Inst. f. Physik in München). Dieser Sonderforschungsbereich ist Ende 2006 ausgelaufen.

### 6.4 EU Netzwerke - 2006 aktiv:

- “Thermonuclear Supernovae and Cosmology” (W. Hillebrandt);
- “Gamma-Ray Bursts” (R. Sunyaev);
- “Planck Surveyor” (S. White);
- Early Stage Training Site (Marie Curie Program) in the European Association for research in Astronomy (EARA). (S. White, H. Spruit)
- Joint Research Activity High Time Resolution Astronomy in the Optical-Infrared Coordination Network for Astronomy in OPTICON (FP6 I3 Program) (H. Spruit)
- “Multi-wavelength Analysis of Galaxy Populations (MAGPOP)”, (G. Kauffmann)

### 6.5 Andere Netzwerke

“Alfa-Lenac” Latein-Amerikanisch-Europäisches Netzwerk für Astrophysik und Kosmologie (S. White)

### 6.6 Sonstige Reisen

E. Churazov: Space Research Institute, Moskau (16.02.–11.03., 24.08.–18.09., 10.12.–31.12).

- G. H. F. Dierksen: Universität Montevideo, Uruguay (26.01.–16.03.),
- Universität Chile, Santiago de Chile, Chile (16.03.–31.03.),
  - Universität Sao Paulo (USP), SP, Brasilien (21.09.–06.10., 23.11.–06.12.),
  - Federal Universität Para (UFPA), Belem, PA, Brasilien (06.10.–06.11.),

– Federal Universität Bahia (UFBA), Salvador, BA, Brasilien (06.11.–23.11.),

M. Gilfanov: Space Research Institute, Moskau (1.07.–31.07.)

G. Kauffmann: Universität California, Santa Barbara (3.07.–25.07.)

A. Kitsikis: INAF - Astronomical Observatory of Padova and Department of Astronomy, Universität Padova, Italien (15.09.–15.12.)

Th. Mädler: Department of Astronomy and Astrophysics, Universität of Valencia, Spanien (03.04.- 18.12.2006)

P. Mazzali: Visiting Professor, Universität Tokyo (25.11.-18.12.)

O. Moeller: Kapteyn Institute, Groningen, 24.2.-7.3.

– KITP, Santa Barbara, USA, 7.10.-4.11.

E. Müller: Ecole Normale Supérieure, Lyon (15.04.–29.04., 15.5.–25.5.)

– Institut Henri Poincaré, Paris (6.11.–30.11)

S. Sazonov: Space Research Institute, Moskau (8.5.–2.6.)

H. Spruit: Physics Department, Universität Crete, Heraklion (29.6.–28.7.)

– Theoretical Institute for Advanced Research in Astrophysics, Hsin-Chu, Taiwan (25.11.–9.12.).

A. Watts: Kavli Institute for Theoretical Physics, Santa Barbara (21.05–17.06)

A. Weiss: Dartmouth College, Hanover (NH), USA (19.09.-05.12.).

V. Wild: Johns Hopkins University, MD, (10.05.-01.06.)

– Institute for Astronomy, University Cambridge, (30.7.-31.8.)

## 7 Veröffentlichungen

### 7.1 In Zeitschriften und Büchern

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