

Curriculum Vitae

PD. Dr. H. Hubertus Klahr

Present Position:

Staff Scientist
Head of Group: Theory of Planet and Star Formation
Max-Planck-Institute for Astronomy, Heidelberg, Germany
Privatdozent: Ruprecht-Karls-Universität Heidelberg

Education:

- 2008, Jan. Habilitation (Astronomy and Astrophysics),
Eberhard-Karls University, Tübingen with Prof. W. Kley
Thesis: *Hydrodynamical Models in the Field of Planet Formation*
- 1998, Jun. PhD (Astrophysics),
Friedrich Schiller University, Jena with Prof. Th. Henning
Thesis: *Thermal Convection and Particle Distribution
in Protoplanetary Accretion Disks*
- 1994, Mar. Diploma (Physics), Fridericiana University, Karlsruhe
Thesis: *Application of Neural Networks in the Computation
of Quasistatic Electromagnetic Fields*

Professional Experience:

- 2000-2002 Wissenschaftlicher Assistent (non-tenure track Assistant Professor)
Computational Physics, Institute for Astronomy and Astrophysics
University Tübingen, Germany
- 1998-2000 NASA funded Post-Doc, with P. Bodenheimer and D. Lin
UCO/Lick Observatory, Santa Cruz
- 1998 July-September Guest Scientist, with G. Rüdiger,
Astrophysical Institute Potsdam
- 1998 Research Assistant, Astrophysical Institute of Jena University
- 1994-1997 PhD student, Max-Planck Research Unit
“Dust in Star Forming Regions”, Jena

Fields of Interest:

Star and Planet formation, Turbulence,
Computational Astrophysics, Super Computing,
Magneto-, Hydrodynamics, Radiation transport,
Accretion disks

Courses lectured as Privat Dozent at Heidelberg University:

WS 2010/11 Extrasolar Planets and Brown Dwarfs
WS 2010/11 UKNum (Numerisches Praktikum)
WS 2010/11 Seminar Einführung in die Astronomie und Astrophysik III
SS 2010 Seminar Einführung in die Astronomie und Astrophysik III
WS2009/10 UKNum (Numerisches Praktikum)

Teaching Experience within Habilitation Requirements in Tübingen:

WS 2000 Exercises: General Relativity (with Willy Kley)
SS 2001 Exercises: Computational Hydrodynamics (with Willy Kley)
SS 2001 Co-lecturer: Planet Formation (with Willy Kley)
WS 2001 Co-lecturer: Computational Physics Exercises
WS 2001 Co-lecturer: Astrophysics Exercises
SS 2002 Lecturer: Geophysical Fluid Dynamics

further Teaching Experience:

09/10 Lecturer: "From disks to planetesimals"
06/2007 Lecturer: "From disks to planetesimals"
at: summer school on "circumstellar disks and planets...", Portugal
10/2005 Lecturer: "Numerical Methods in Planet Formation"
at: Summer School "EXTRASOLAR PLANETARY SYSTEMS"
since 2003 Head of PhD Student Advisory Committee at the MPIA
11/2004 Lecturer: "Hydro Dynamics of Disks"
at: Network School on Numerical Methods in Planet Formation
10/2003 Lecturer: "Turbulence in Accretion Disks", Frejus
at: Network School and Annual Meeting of EU ITN
10/2003 public lecture: "Wovon Astronomen träumen..."
at: SWR Schülertag, Uni-Heidelberg

Current Students and Post Docs:

Christoph Mordasini (Post-Doc): Population Synthesis models
Natalia Dziourkevitch (Post-Doc): non-ideal MHD in accretion disks
Benoit Commerçon (Post-Doc): R-MHD in star formation
Ludovic Petitdemange (Post-Doc): MRI in planetary interiors
Karsten Dittrich (PhD-Student): Planetesimal Formation
Ana Uribe (PhD-Student): Planet Disk Interaction
Natalie Raettig (Diploma/PhD-Student): Baroclinic Instability
Mario Flock (Diploma/PhD-Student): MHD turbulence in global disks

Kai-Martin Dittkrist (Diploma): Population Synthesis models
Hassnat Ahmad (Master): Selfgravity in disks
Helen Morrison (Bachelor): Baroclinic instability
Paul Mollier (Projektpraktikum): Transit observation

Past Students and Post Docs:

Patrick Glaschke (Post-Doc): SPH and N-Body models of planetesimal formation
Artur Gawryszczak (Post-Doc/Humboldt Fellow): Self-gravitating disks
Rolf Kuiper (PhD-Student): Modeling of disks in the formation of massive stars
Anders Johansen (PhD-Student): MHD models in early planet formation
Oliver Fernandes (Diploma-Student): Planet–disk interaction
David Foltin (Diploma-Student): Cooling functions for self-gravitating disks

Complementary Skills:

12/2006 seminar by MPG: “Team Management”
Führung von Projekten und Arbeitsgruppen
11/2005 seminar by Klaus Tschira Stiftung: “Media training”
Medientraining für Wissenschaftler/innen
06/2005 seminar by Klaus Tschira Stiftung: “Writing for the public”
Schreibwerkstatt für Wissenschaftler/innen
03/2002 seminar by the Hochschuldidaktik Tübingen: “Teaching at the university”
Lehren und Lernen an der Universität

Current Collaborators:

Peter Bodenheimer, UCO/Lick Santa Cruz
Jürgen Blum, Uni Braunschweig
Geoff Bryden, JPL
Kees Dullemond, MPA
Willy Kley, Uni Tübingen
Doug Lin, UCO/Lick Santa Cruz
Mordecai-Mark Mac Low, AMNH
Michal Rozyczka, Warsaw
Neal Turner, JPL
Richard Wunsch, Prague
Gerhard Wurm, Uni Münster
Max Camenzind, LSW
Thomas Henning, MPIA
Chris Ormel, MPIA
Sebastian Wolf, Kiel

Computer Experience:

Pascal(since 1983), FORTRAN(since 1986), C(since 1989), IDL(since 1994)
256 Processor Linux Cluster
Cray T3E, T90, J90, M94, YMP8
Developed programs: Automatic mesh-generators, 3D radiation hydrodynamics,
hydrostatic accretion disk models, particle tracer, coagulation codes, ...

Member of:

Deutsche Physikalische Gesellschaft; Astronomische Gesellschaft
American Astronomical Society; International Astronomical Union

Referee for:

Icarus, ApJ, MNRAS,
Astronomy & Astrophysics,
NASA OSS: Planetary Geology and Geophysics,
NASA OSS: Origins of Solar Systems,
Particle Physics and Astronomy Research Council (PPARC)

Grants and Awards:

2010	PI of project in the DFG Schwerpunktprogramm SPP-1385: The first 10 million years of the solar system
2010	PI of project in the DFG Schwerpunktprogramm SPP-1488: Planetary Magnetism
2010	BAR (Computing Advisory Comitee of the MPG): hardware grant to buy a 1008 core IBM Cluster: 500 KEuro
2009	PI of project C3 in the DFG Forschergruppe FOR-759: The Formation of Planets: The Critical First Growth Phase
2006	PI of project C1 in the DFG Forschergruppe FOR-759: The Formation of Planets: The Critical First Growth Phase
2005	BAR (Computing Advisory Comitee of the MPG): hardware grant to buy a 256 processor Opteron Cluster: 400 KEuro
2004	BAR (Computing Advisory Comitee of the MPG): hardware grant to buy a four quad board Opteron Cluster: 100 KEuro
06/2000 to 05/2003	NASA Origins research grant: NAG5-9526: \$ 45000
2000 to 2002	DFG SFB 382 "Physics on Super Computers" Project C19
1999-2000	Computing Grants: NPACI San Diego
1995-1999	Computing Grants: Supercomputing Center Jülich, Germany
1994	1st Student Parabolic Flight Campaign from ESTEC

Workshop Organization and Council Members:

2011	Organizer International Conference: “Ringberg Workshop: Baroclinic Instability in circumstellar disks
2010	Organizer International Conference: “Ringberg Workshop: The predictive power of populations synthesis
2010	NASA Origins review panelist
2009	NASA Origins review panelist
2009	Organizer International Conference: “Ringberg Workshop: The Magneto Rotational Instability
since 2007	Elected Representative in the CPT Section of the MPG
2006	Organizer National Conference: “MHD-Days 2006”
2006	Organizer International Meeting: “EU-Network Planets: The Next Generation”
2006	Organizer International Conference: “Ringberg Workshop: From Dust to Planetesimals”
2005	Editor: “Planet Formation: Observations, Experiments and Theory”, Cambridge University Press
2004	Organizer International Conference: “Ringberg Workshop on Planet Formation: Theory meets Observation”
2004	Organizer “2nd Tübingen/Heidelberg Workshop on Astrophysical Fluid Dynamics”
2003-2007	Scientific Advisory Comitee at the MPIA Heidelberg
since 2003	Head of PhD Student Advisory Comitee at the MPIA
2003-2007	PostDoc Representative at the MPIA
2001	SOC “First Tuebingen Workshop on Astrophysical Fluid Dynamics”
1998	SOC IAU Group-Workshop in Siegmundsburg

Public Talks:

- 10/2010 invited review: ‘Radiation Hydro of turbulence in circumstellar disks’
Frontiers in Computational Astrophysics, Lyon
- 10/2010 invited review: ‘The role of turbulence in the formation of planetesimals’
German-Japanese Workshop, Tübingen
- 12/2009 invited colloquium: ‘The role of turbulence in the formation of planets’
Exeter University
- 12/2009 invited colloquium: ‘The role of turbulence in the formation of planets’
Isaac Newton Center, Cambridge
- 11/2009 invited colloquium: ‘Baroclinic instability in accretion disks’
Uni-Cottbus
- 09/2009 invited colloquium: ‘The role of turbulence in the formation of planets’
Stockholm University
- 06/2009 invited colloquium: ‘Turbulence in the formation of planets’
AMNH-New York
- 05/2009 invited colloquium: ‘The role of turbulence in the formation of planets’
DTM-Washington
- 12/2009 invited review: ‘The role of turbulence in the formation of planets’
Winter Workshop on Planetary Astrophysics, KIAA, Peking University
- 09/2009 invited review: ‘Gravoturbulent Planetesimal Formation’
Cambridge
- 06/2009 invited review: ‘The role of turbulence in the formation of planets’
ASTRONUM - 2009, Chamonix
- 05/2009 invited review: ‘The role of turbulence in the formation of planets’
Solving the Riddle of Turbulence, Göttingen
- 04/2009 invited talk: ‘The role of turbulence in the formation of planets’
Magnetorotational Instability and Related Processes, Schloss Ringberg
- 06/2009 invited review: ‘Turbulence and Planetesimal Formation’
Evolution of Planetary and stellar systems, PRATO
- 03/2009 contributed talk: ‘Towards populations synthesis for direct imaging planets’
Tübingen
- 11/2008 invited colloquium: ‘Turbulence and Planetesimal Formation’
Max Planck Institute for Dynamics and Self-Organization (Goettingen)
- 09/2008 invited colloquium: ‘Turbulence and Planetesimal Formation’
ENS Paris
- 09/2008 invited review: ‘Turbulence and Planetesimal Formation’
JENAM 08/ University Vienna
- 05/2008 colloquium: ‘The latest on Global Baroclinic Instability’
MPIA Heidelberg
- 03/2008 invited review ‘Observability of Planet Formation with SKA’
MPIFR Bonn
- 03/2008 invited colloquium: ‘Turbulence and Planetesimal Formation’

- UC San Diego, CA
- 03/2008 contributed talk: “The latest on Global Baroclinic Instability”
Caltech Pasadena, CA
- 03/2008 invited colloquium: “Turbulence and Planetesimal Formation”
UC Santa Cruz, CA
- 1/2008 Habilitationsvortrag: “Lucky Imaging”
Hochgeschwindigkeitskameras im Kampf gegen
Atmosphärische Bildstörungen
Universität Tübingen
- 12/2007 invited colloquium: “Turbulence and Planetesimal Formation”
Universität Bern
- 11/2007 invited colloquium: “Turbulence and Planetesimal Formation”
KITP Santa Barbara
- 09/2007 contributed talk: “Turbulence and Planetesimal Formation”
at: 5. Planet Formation Workshop, Braunschweig
- 06/2007 public talk: “Von magnetischen Stürmen und Planeten auf der Wanderschaft”
at: Astronomie am Sonntag Vormittag, Heidelberg
- 06/2007 lecture: “From disks to planetesimals”
at: summer school on ”circumstellar disks and planets...”, Portugal
- 06/2007 invited talk: “Turbulence and Planetesimal Formation”
at: Nobel Symposium 135: Stockholm
- 04/2007 contributed talk: “Hot gas bubbles around nascend planets”
at: FROM STARS TO PLANETS: University of Florida, Gainesville
- 12/2006 invited talk: “The bumpy road from Dust to Planets”
at: University of Kyoto
- 12/2006 colloquium: “Numerical Simulations of Planet Formation processes”
at: University of Tokyo
- 12/2006 invited talk: “The bumpy road from Dust to Planets”
at: The Third Meeting of Exo-Planet Research in Japan”, Tokyo
- 11/2006 talk: “The bumpy road from Dust to Planets”
at: Queen Mary University London
- 10/2006 talk: “Prospects for a future network”
at: EU-Network Meeting PLANETS: Heidelberg
- 10/2006 talk: “Planet Disk Interaction”
at: Group Retreat: St. Odile
- 10/2006 colloquium: “The bumpy road from Dust to Planets”
at: House-Colloquium: Max-Planck Institut Heidelberg
- 09/2006 invited review: “Turbulent Diffusion and Concentration of Dust”
at: Workshop: From Dust to Planetesimals, Ringberg
- 08/2006 invited review: “Convection in Accretion Disks”
at: AU Symposium 239: Convection in Astrophysics, Prague
- 07/2006 talk: “Hot bubbles around nascend planets”

at: Conference: The Planet-Disk Connection , Cambridge
 07/2006 talk: "The bumpy road from Dust to Planets"
 at: American Museum of Natural History, New York
 06/2006 talk: "Planet Formation Processes on the Computer"
 at: Jet Propulsion Laboratory, Pasadena
 03/2006 talk: "Hot bubbles around nascend planets"
 at: 4th Planet Formation Workshop , Heidelberg
 10/2005 lecture: "Numerical Methods in Planet Formation"
 at: School on Planet Formation, Bad Honnef
 9/2005 talk: "Turbulent Diffusion in Protoplanetary Disks"
 at: Annual meeting of the Astronomische Gesellschaft
 9/2005 public talk: "Die Geburt des Sonnensystems"
 at: Open house at the MPIA
 6/2005 invited talk: "Turbulent Diffusion in Protoplanetary Disks"
 at: Protoplanetary disk evolution in Leiden
 3/2005 talk: "Transport and diffusion of grains and molecules
 in 3D-MHD simulations of protoplanetary accretion"
 at: Disks to Planets meeting in Pasadena
 2/2005 talk: "Dust Diffusion, Transport and Concentration
 in 3D MHD Simulations of Protoplanetary Accretion Disks"
 at: Aspen Conference on Planet Formation and Detection
 12/2004 invited review: "Hydrodynamical Models of Protoplanetary disks"
 at: Ringberg Workshop on Planet Formation: Theory meets Observation
 11/2004 lecture: "Hydro Dynamics of Disks"
 at: School on Numerical Methods in Planet Formation
 10/2004 talk: "What does planet formation actually look like?"
 at: Workshop Planetenbildung, Muenster
 11/2004 colloquium: "What does planet formation actually look like?"
 at: University Braunschweig
 09/2004 talk: "Numerical Simulations of Planet Formation"
 at: BAR - Meeting, MPIK
 07/2004 invited colloquium: "What does planet formation actually look like?"
 at: Astronomisches Kolloquium, Heidelberg
 06/2004 talk: "3D - Radiation Hydro of Planet Disk interaction"
 at: 2nd Tübingen/Heidelberg Workshop, MPIA
 05/2004 talk: "3D - Radiation Hydro of Planet Disk interaction"
 at: Workshop on Planet Disk interaction, Stockholm
 04/2004 invited review: "Hydrodynamical Models of Protoplanetary disks"
 at: Modeling the structure, chemistry and appearance
 of protoplanetary disks, Ringberg
 03/2004 invited colloquium: "A Three Phase Model of Planet Formation"
 at: NCAC, Warsaw

- 03/2004 colloquium: “A Three Phase Model of Planet Formation”
at: Planet Formation Workshop, Santa Barbara, USA
- 12/2003 invited talk: “A Three Phase Model of Planet Formation”
at: Gravitational Collapse: From Massive Stars to Planets,
Ensenada, Mexico
- 10/2003 lecture: “Turbulence in Accretion Disks”
at: Annual Meeting of the EU Network on Planet Formation, Heidelberg
- 10/2003 lecture: “Wovon Astronomen träumen...”
at: SWR Schülertag, Uni-Heidelberg
- 09/2003 contributed talk: “The Formation of a Planet in the Eye of a Hurricane”
at: DPS, Monterey
- 06/2003 invited talk: “A Three Phase Model of Planet Formation”
at: Planet formation
toward a new scenario, Marseilles
- 05/2003 house colloquium: “A Three Phase Model of Planet Formation”
at: MPIA, Heidelberg
- 03/2003 invited colloquium: “A Three Phase Model of Planet Formation”
at: IAU, Jena
- 03/2003 colloquium: “A Three Phase Model of Planet Formation”
at: Center for Star Formation Studies,
NASA Ames
- 02/2003 contributed talk: “A Three Phase Model of Planet Formation”
at: Planetenbildung:
Das Sonnensystem und extrasolare Planeten, Weimar
- 11/2002 Vorstellung Habilitation: “A Three Phase Model of Planet Formation”
at: Fakultät für Mathematik und Physik, Tübingen
- 11/2002 invited talk: “A Three Phase Model of Planet Formation”
at: Formation of Stars and Planets, NCAC, Warsaw
- 10/2002 colloquium: “The Formation of a Planet in the Eye of a Hurricane”
at: theory meeting, MPIA, Heidelberg
- 07/2002 invited colloquium: “The Formation of a Planet in the Eye of a Hurricane”
at: AIP, Potsdam
- 07/2002 colloquium: “The Global Baroclinic Instability in Accretion Disks”
at: Center for Physics, Aspen
- 06/2002 contributed talk: “The Formation of a Planet in the Eye of a Hurricane”
at: Scientific Frontiers in Research on Extrasolar Planets, Washington
- 05/2002 invited colloquium: “The Formation of a Planet in the Eye of a Hurricane”
at: University of Palermo, Italy
- 04/2002 colloquium: “The Formation of a Planet in the Eye of a Hurricane”
at: Turbulence in Disks, NASA Ames
- 02/2002 contributed talk: “The Formation of a Planet in the Eye of a Hurricane”
at: Planetenbildung: Das Sonnensystem

- und extrasolare Planeten , DLR Berlin
- 01/2002 colloquium: “The Formation of a Planet in the Eye of a Hurricane”
at: Arbeitsgruppe Munz, Universität Stuttgart
- 10/2001 workshop: “The Global Baroclinic Instability in Accretion Disks”
at: AIU - Jena, Eisenberg
- 04/2001 contributed talk: “The Global Baroclinic Instability in Accretion Disks”
at: First Tübingen Workshop
on Astrophysical Fluid Flow, Tübingen
- 04/2001 contributed talk: “The Formation of a Planet in the Eye of a Hurricane”
at: EGS, Nice
- 01/2001 colloquium: “The Formation of a Planet in the Eye of a Hurricane”
at: AIU, Jena
- 10/2000 colloquium: “The Formation of a Planet in the Eye of a Hurricane”
at: CPT, Tübingen
- 08/2000 colloquium “The Formation of a Planet in the Eye of a Hurricane”
at: UCO/Lick Observatory, Santa Cruz
- 00/2000 colloquium: “The Global Baroclinic Instability in Accretion Disks”
at: Center for Star Formation Studies,
NASA Ames
- 04/2000 colloquium, “The Global Baroclinic Instability in Accretion Disks”
at: Institute for Theoretical Physics,
Santa Barbara
- 02/2000 colloquium: “The Global Baroclinic Instability in Accretion Disks”
at: AIP, Potsdam
- 01/2000 contributed talk: “The Global Baroclinic Instability in Accretion Disks”
at: Accretion disk meeting, Kopenhagen
- 12/1999 colloquium: “The Global Baroclinic Instability in Accretion Disks”
at: guest colloquium, MPA Heidelberg
- 11/1999 colloquium: “Dust Distribution in Gas Disks.
A Model for the Ring Around HR 4796A”
at: Center for Star Formation Studies, NASA Ames
- 10/1999 contributed talk: “Dust Distribution in Gas Disks.
A Model for the Ring Around HR 4796A”
at: DPS AAS meeting, Padua
- 07/1999 contributed talk: “The Global Baroclinic Instability
in Accretion Disks”
at: Three decades of Computational Astrophysics,
Port Douglas, Australia
- 06/1999 contributed talk: “Simulations of Particle Coagulation”
at: CODAG Workshop, Bremen
- 03/1999 colloquium: “Dust Distribution in Gas Disks.
A Model for the Ring Around HR 4796A”

- 09/1998 at: Center for Star Formation Studies, NASA Ames
 contributed talk: “3D Simulations of Thermal Convection
 in Accretion Disks”
 at: AG-Tagung, Heidelberg
- 09/1998 colloquium: “3D Simulations of Thermal Convection in Accretion Disks”
 at: AIP, Potsdam
- 06/1998 public defense: “3D Simulations of Dust Concentration
 due to Thermal Convection in Accretion Disks”
 at: AIU, Jena
- 12/1997 “3D Simulations of Thermal Convection in Accretion Disks”
 at: contributed talk: MHD-Day AIP, Potsdam
- 09/1996 contributed talk: “3D Modelling of Protoplanetary Accretion Disks”
 at: AG-Tagung, Tübingen
- 08/1996 colloquium: “Dust Concentration
 due to Thermal Convection in Accretion Disks”
 at: LPI, Tucson