

Heidelberg

Max-Planck-Institut für Kernphysik

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0 Allgemeines

Nach der Emeritierung von H.J. Völk (Bereich Astrophysik) zum 31. 12. 2004 wurden die zugehörigen Arbeiten in den Gruppen Theoretische Astrophysik, Hochenergie-Astrophysik, Infrarot-Astrophysik und Neutrino-Astrophysik fortgesetzt. Zusammen mit den Arbeiten zur experimentellen Gamma-Astronomie im Bereich von W. Hofmann und den Aktivitäten in der Labor-Astrophysik sowie in den Projekten zur Physik der Staubteilchen im Sonnensystem stellen sie den astrophysikalisch orientierten Teil des Instituts dar. Hinzu kommen die "Selbständige Nachwuchsgruppe Neutrino-Physik" (S. Schönert), die auch auf dem Gebiet der Sonnenneutrinos tätig ist, sowie die zum Ende des Jahre 2005 neu am Institut eingerichtete Emmy-Nöther-Nachwuchsgruppe "High Energy Neutrino Astronomy with IceCube" (E. Resconi), die sich mit Hochenergie-Neutrino-Astronomie beschäftigt wird.

Wichtigstes Gemeinschaftsprojekt ist das *High Energy Stereoscopic System (H.E.S.S.)* in der bodengebundenen Gamma-Astronomie bei sehr hohen Energien. Die erste Phase von H.E.S.S. (H.E.S.S. Phase I) in Namibia ist seit Ende 2003 voll in Betrieb. Sie umfasst vier optische 12m-Teleskope. Die Pläne, dieses Teleskopsystem durch Hinzufügen eines sehr viel größeren 28m-Teleskops zu erweitern (H.E.S.S. Phase II), sind zum Ende des Jahres 2005 in das konkrete Stadium des Baubeginns getreten.

Das Sonnenneutrino-Experiment *Gallium Neutrino Observatory (GNO)* wurde 2005 abgeschlossen. Der Beginn des Sonnenneutrino-Experiments *Borexino* ist durch Sanierungsarbeiten sicherheitsrelevanter Einrichtungen des Gran Sasso Untergrundlabors (Italien) verzögert; er wird nun im Jahr 2006 erwartet. Ziele von *Borexino* sind sowohl die Echtzeitmessung von ^7Be und pep-Neutrinos aus dem pp-Fusionszyklus als auch der direkte Nachweis von Neutrino aus dem CNO-Zyklus. Die Studien zu *LENS*, einem Sonnenneutrino-Experiment der nächsten Generation, wurden inzwischen erfolgreich abgeschlossen. Ein Bau des Experiments ist aber derzeit nicht vorgesehen.

Die Theoretische Astrophysik beschäftigt sich allgemein mit nichtthermischen Prozessen im Universum, unter anderem mit der Physik von Pulsaren und Supernova Überresten und deren Bedeutung für die beobachtende TeV-Astronomie. Einige Mitglieder sind zusammen mit Wissenschaftlern der Ben Gurion University, Beer Sheva, am Projekt *Physics of Pulsar Wind Nebulae* der German-Israeli Foundation beteiligt.

Die Hochenergie-Astrophysik des Instituts betreibt auf der einen Seite das H.E.S.S.- Experiment und seinen Ausbau, gemeinsam mit der Datenanalyse und der Interpretation der Beobachtungen. Auf der anderen Seite stehen theoretische Untersuchungen der Strahlungsprozesse in einem Multi-Wavelength Kontext.

In der Infrarot-Astrophysik wurde die Auswertung und Interpretation der Daten des *Infrared Space Observatory (ISO)* weitgehend abgeschlossen. Weiter führende Beobachtungen mit dem *Spitzer* Observatory der NASA sind komplementär zu mehr theoretischen Untersuchungen des Einflusses der Staubkomponente auf das Emissionsspektrum und die Strahlungsabsorption von Galaxien vom UV-Bereich bis zum submm-Gebiet.

Die Staubgruppe ist maßgeblich mit einem eigenen Instrument an der Weltraum-Mission *CASSINI* beteiligt. Die Mission ist nach wie vor voll aktiv. Beobachtungen des Trails des Kometen 67P/Churyumov-Gerasimenko mit dem *Spitzer* Weltraumteleskop, dem VLT und dem 2,2m ESO/MPG Teleskop dienen der quantitativen Untersuchung des Anteils mm-großer Teilchen im Staub des Kometen.

In der Labor-Astrophysik wurden die Untersuchungen über Kettenmoleküle des Kohlenstoffs fortgesetzt und auf die Oxide dieser Spezies ausgedehnt. Moleküle dieser Art zeigen Absorptionen in der Nähe der stärksten diffusen interstellaren Banden und sind daher als Kandidaten fuer die bisher unidentifizierten Träger dieser Banden von Interesse.

Das Institut ist maßgeblich beteiligt an der *International Max-Planck Research School for Astronomy and Cosmic Physics (IMPRS) at the University of Heidelberg*. Mehrere Doktoranden am Institut sind Mitglieder der IMPRS.

Ebenso ist das Institut an dem Sonderforschungsbereich 439 ("Galaxien im jungen Universum") der DFG beteiligt.

Ins Einzelne gehende Berichte über die längerfristigen Forschungsarbeiten am Institut enthält der 2-jährige Tätigkeitsbericht 2003/2004 des Instituts, der sowohl in verkürzter Form ("Compendium") wie auch in voller Länge auf der Webseite des Institutes unter der Adresse: <http://www.mpi-hd.mpg.de> abgelegt ist. Er ist auch in Papierformat erhältlich über PD Dr. Sparn, Tel. (06221)516-295, e-mail: guenter.sparn@mpi-hd.mpg.de. Ein analoger Detailbericht wird Ende 2006 über die Jahre 2005/2006 vorgelegt werden.

1 Personal

Direktoren:

Prof. W. Hofmann., Prof. H.J. Völk (emeritiert)

Arbeitsgruppenleiter:

Dr. F.A. Aharonian, Prof. E. Grün, Prof. W. Hampel, Prof. J.G. Kirk, Prof. W. Krätschmer, Dr. S. Schönert (selbständige Nachwuchsgruppe), Dr. R.J. Tuffs

Wissenschaftliche Mitarbeiter:

Dr. W. Benbow, PD. Dr. K. Bernlöhr, Dr. O. Bolz, Dr. L. Costamante (LEA Stipendiat), Dr. V. Dikarev, Dr. S. Funk (ab 7.7.), Dr. S. Gabici (Humboldt Stipendiat), Dr. F.X. Hartmann, S. Helfert, Dr. G. Hermann, Dr. K. Hirotsu (bis 30.06) Dr. S. Inoue (MPG Stipendiant), Dr. J. Kiko, Dr. S. Kempf, Dr. D. Khangulian (MPG Stipendiant), Dr. B. Khelifi (bis 30.9.), Dr. K. Kosack (ab 1.9.), Dr. C. Masterson, G. Moragas-Klostermeyer, Dr. Y. Moriguchi (MPG Stipendiant), Dr. J. Oehm, Dr. M. Panter, Dr. J. Pétri (GIF), Dr. C.C. Popescu, Dr. R. Reusch (ab 1.12), Dr. G. Rowell, Dr. H. Simgen, Dr. R. Srama, Dr. L. Stawarz (MPG Stipendiant), Dr. D. Strelnikov, Dr. V.N. Zirakashvili (MPG Stipendiat), Dr. G. Zuzsel

Doktoranden:

J. Agarwal, U. Beckmann, I. Braun, D. Berge, D. Budjas (ab 1.9.), R. Bühler (ab 1.12.), S. Carrigan, O. Esquivel, (ab 1.09), D. Franco, S. Funk (bis 6.7.), D. Hauser, S. Hoppe (ab 1.11.), S. Hnatic, F. Kaether, A. Mockler, D. Nedbal, P. Peiffer, F. Postberg, M. Rachev, R. Reusch (bis 1.12), A. Srowig (IMPRS), O. Tsang (SFB439), G. Vannoni (IMPRS, ab 1.05)

Diplomanden:

R. Bühler (bis 31.11.), K. Egberts, G. Frenz (ab 26.10.), B. Glück (ab 1.3.), M. Heisel (ab 14.3.), R. Moissl, I. Wiesler (ab 3.11.)

Technisches Personal:

R. Alberts, B. Anweiler, J. Baumgart, E. Borger, E. Burkert, R. Crespo, H. Fuchs, F. Garrecht, G. Linkert, W. Müller, S. Pawlinka, U. Schwan, B. Villaumi'e

Wissenschaftliche Gäste:

Dr. P. Allen (Australien), Prof. M. Begelman (USA), V. Bosch-Ramon (Spanien), Prof. Dr. E.G. Berezhko (Russland), Dr. S. Bugaev (Russland), Prof. P. Coppi (USA), Prof. M.A. Dopita (Australien), Dr. P. Duffy (Irland), Dr. J. Fischera (Australien), Prof. Y. Fukui (Japan), Prof. G. Hasinger (Deutschland), Dr. J.A. Hinton (Großbritannien), Dr. J. Hiraga (Japan), Prof. O. de Jager (S. Africa), Dr. M. Keillor (USA), Prof. S. Kelner (Russland), Dr. L. Kewley (USA), Dr. L.T. Ksenofontov (Russland), M. Lemoine (Frankreich), Dr. J. Liske (ESO), Dr. Y. Lyubarsky (Israel), M. Di Marco (Kanada), Prof. A. Mastichiadis (Griechenland), K. Nishikawa (USA), Prof. A. Plyasheshnikov (Russland), Dr. F. Rieger (Irland), Dr. E. Resconi (DESY), Dr. A. Timokhin (Russland), Dr. C. van Eldik (Deutschland)

2 Lehrveranstaltungen, Ausbildung von Studenten:*Universität Heidelberg, Sommersemester 2005:*

Prof. E. Grün: Terrestrische Planeten und Asteroiden (Seminar)
 Prof. W. Hampel: Physikalisches Praktikum für Biologen
 Prof. W. Hofmann, Neutrinos in der Teilchen- und Astrophysik (Seminar)
 Dr. S. Kempf: Himmelsmechanik II (Vorlesung)
 Prof. W. Krätschmer: Kohlenstoff-Nanostrukturen I (Vorlesung)
 Dr. R. Srama: Astronomie Missionen (Vorlesung)
 Anfängerpraktikum: 2A für Physiker (J. Agarwal)

Universität Heidelberg, Wintersemester 2005:

PD K. Bernlöhr, Gruppenunterricht zur Physik 5.
 Prof. E. Grün: Die kleinen Körper im Sonnensystem (Oberseminar)
 Prof. W. Hampel: Ferienpraktikum für Physiker und Chemiker
 Prof. W. Hofmann, Gruppenunterricht zur Physik 1.

Prof. W. Hofmann, Instrumentenentwicklung und Datenanalyse in der Hochenergie-Gamma-Astronomie (Seminar)

Dr. S. Kempf: Physik des Wachstums (Vorlesung)

Prof. J. Kirk: "Radio galaxies and quasars"(Seminar)

Prof. J. Kirk: "Sources of high energy radiation"(Seminar)

Prof. J. Kirk: "Theoretical astrophysics"(Exercise classes)

Prof. W. Krätschmer: Kohlenstoff-Nanostrukturen II (Vorlesung)

Dr. R. Srama: Raumfahrt Anwendungen (Vorlesung)

International Schools:

Prof. J. Kirk: Culham Summer School on Plasma Physics, 2 lectures

3 Tagungen, Vorträge

3.1 Beteiligung an der Veranstaltung von Tagungen:

International Conference "Dust in Planetary Systems", Kaua'i Hawai'i, 26-30 September (E. Grün)

Conference "Towards a Network of Atmospheric Cherenkov Detectors" in Palaiseau (April 27-29, 2005) (H.J. Völk)

29th "International Cosmic Ray Conference" in Pune (India) (August 3-10, 2005) (H.J. Völk)

3.2 Teilnahme an Tagungen:

29 Poster, 71 Vorträge, 40 eingeladene Vorträge/Übersichtsvorträge

Eingeladene Vorträge/Übersichtsvorträge:

Aharonian, F.: Probing Supernova Remnants, Black Holes and Dark Matter with TeV Gamma Rays. At: American Physical Society Annual Meeting, Tampa, USA, April 16-19, 2005.

Aharonian, F.: TeV Gamma Ray Sources. At: 9th Intern. Conference on "Topics in Astroparticle and Underground Physics (TAUP 2005)", Zaragoza, Spain, September 10-14, 2005.

Aharonian, F.: Possible sites and mechanisms of TeV Gamma Ray Emission in the Galactic Center. At: Intern. Conf. "High Energy Phenomena in the Galactic Center" Paris, France, June 15 - 17, 2005.

Aharonian, F.: High Energy Gamma Rays from the GC region. At: 5th AGILE Science Workshop, Rome, Italy, Feb 2-3, 2005.

Aharonian, F.: TeV radiation from the Black Hole in the Galactic Center. At: Intern. Conference on "The Paradoxes of Massive Black Holes", Santa Barbara, USA, April 14-16, 2005.

Aharonian, F.: Science goals vs. Energy ranges. At: International Conference "Towards a Network of Atmospheric Cherenkov Detectors", Palaiseau, France, April 27-29 April,

2005

- Aharonian, F.: Arrays of Imaging Atmospheric Cherenkov Telescopes. At: CHIPP Astroparticle Workshop, Versoix, Switzerland, May 2-3, 2005.
- Aharonian, F.: TeV Gamma Rays and Origin of Cosmic Rays. At: Intern. Workshop. "TeV Particle Astrophysics", Fermilab, USA, July 13 - 15, 2005.
- Aharonian, F.: H.E.S.S. - High Energy Stereoscopic System of Atmospheric Cherenkov Telescopes. At: Intern. Workshop on "Astrophysics of Ultra-high Energy Cosmic Rays, Photons, and Neutrinos", Santa Barbara, USA, May 2-20, 2005.
- Aharonian, F.: TeV gamma ray sky. At: 2nd International Workshop on Very Large Volume neutrino Telescope, Catania, Italy, November 8-11, 2005.
- Benbow, W.: H.E.S.S. performance and results. At: TeV Particle Astrophysics, Fermilab, U.S.A., Juli 2005.
- Bernlöhr, K.: Cherenkov light in CORSIKA. At: VIHOS CORSIKA School 2005, Freudenstadt-Lauterbad, 31. Mai – 5. Juni 2005.
- Bernlöhr, K.: Simulations for H.E.S.S.. At: VIHOS CORSIKA School 2005, Freudenstadt-Lauterbad, 31. Mai – 5. Juni 2005.
- Hofmann, W.: H.E.S.S. Status. At: Workshop Towards a Network of Atmospheric Cherenkov Detectors VII, Palaiseau, 27.-30. April 2005.
- Hofmann, W.: Elementary Particles and the Cosmos. At: EPS Physics Education Conference, Bad Honnef, 4. Juli 2005.
- Hofmann, W.: Very High Energy Gamma Ray Astronomy with H.E.S.S.: Highlights. Highlight Lecture at 29th Int. Cosmic Ray Conference, Pune, India, 3. August 2005.
- Hofmann, W.: The H.E.S.S. Observatory. At: 5th National Astroparticle Physics Symposium, Utrecht, 14. Oktober 2005.
- Kirk, J.: Particle acceleration by relativistic shock fronts. At: Astrophysics of Ultra-High Energy Cosmic Rays, Photons and Neutrinos, 2-20 May 2005, Kavli Institute for theoretical Physics, University of California at Santa Barbara, CA, USA.
- Kirk, J.: Pulsar Wind Theory. At: Stellar End Products, 13-15 April 2005, Granada, Spain.
- Kirk, J.: Pulsar Wind Theory. At: Workshop on Pulsars, Pulsar-Wind Nebulae and Supernovae Remnants, 7-8 April 2005, Berlin.
- Kirk, J.: Pulsar Winds: structure and particle acceleration. At: The physics of collisionless shocks : 4th IGPP International Astrophysics Conference, 26 February - 3 March 2005, Palm Springs, Ca, U.S.A.
- Kirk, J.: Relativistic plasmas in pulsar winds. At: 32nd EPS Plasma Physics Conference, 27 June - 1 July 2005, Tarragona, Spain.
- Krätschmer, W.: The Fullerene Story: A Plea for Fundamental Research, 5th International 21 Century COE Symposium, Osaka University, January 2005.
- Krätschmer, W.: Carbon Clusters as Interstellar Molecules and Grains. At: Interstellar Reactions: from Gas Phase to Solids, International Symposium, Pillnitz, Dresden, June, 2005
- Krätschmer, W.: Carbon Clusters in Materials Science and Astrochemistry, German-Israeli Foundation Meeting on Nanotubes and Nanowires, Dresden, June 2005
- Pétri, J.: Theory of pulsar magnetosphere. At: Dynamics of Astrophysical fluid flows, 9-13 May 2005, Corse.
- Popescu, C.C.: The effect of dust on the appearance of the outer disks of spiral galaxies. At: workshop on "Outer edges of disk galaxies: A truncated perspective", from 4 - 7 Oct 2005, Leiden, The Netherlands

- Popescu, C.C.: Modelling far-infrared emission from dust in gas-rich galaxies. At: 79th Annual Scientific Meeting of the German Astronomical Society “The many facets of the universe - Revelations by New Instruments”, 26 September - 1 October 2005, Köln, Germany
- Rowell, G.: HESS Observations of Galactic TeV Sources. At: Aspen Conference on “Physics At The End Of The Galactic Cosmic Ray Spectrum”, Aspen Center for Physics, Colorado, USA, April 26-30, 2005.
- Rowell, G.: Recent H.E.S.S. Results in TeV Gamma-Ray Astronomy. At: Symposium “New Views of the Universe”, Chicago, USA, Dec 8-13, 2005.
- Schönert, S.: Cutting Edge Projects in Low-Energy Particle Physics and Astrophysics: GERDA and Double-CHOOZ, Particle and Astro-Particle Physics Symposium 14./15. June 2005 Universität Zürich-Irchel
- Srama, R.: Cassini Saturn Dust Measurements. At: Dust in Planetary Systems, Kaua'i, Hawaii, USA
- Tuffs, R.J.: Dust emission from the outer edges of disk galaxies and beyond. At: workshop on “Outer edges of disk galaxies: A truncated perspective”, from 4 - 7 Oct 2005, Leiden, The Netherlands
- Völk, H.J.: Shell-type Supernova Remnants. At: Conference “Towards a Network of Atmospheric Cherenkov Detectors” in Palaiseau, France (27-29 April, 2005).
- Völk, H.J.: Supernova origin of cosmic rays to the knee. At: “Aspen Workshop on the Physics of the End of the Galactic Spectrum” in Aspen, Colorado, USA (25-30 April, 2005)
- Völk, H.J.: Results of the Aspen Workshop. At: Kavli Institute for Theoretical Physics Miniworkshop on “Ultrahigh energy cosmic rays, photons and neutrinos” in Santa Barbara, California, USA (1-21 Mai, 2005)
- Völk, H.J.: High-Energy Astrophysics with H.E.S.S. At: Immo Appenzeller Colloquium “From T Tauri stars to the edge of the Universe” in Heidelberg (30. Juni-1. Juli, 2005)
- Völk, H.J.: High Energy Stereoscopic System (H.E.S.S.). At: Presentation to the Grand Jury for the “Descartes Prize 2005” of the EU in Brüssel, Belgium (12. Juli, 2005)
- Völk, H.J.: Gamma-Ray Astronomy from the Ground – H.E.S.S. in Namibia. At: Scientific Colloquium for G. Morfill in Garching (22. Juli, 2005)
- Völk, H.J.: Very High Energy Gamma-Ray Results. At: IAU Symposium no. 230 “Populations of high-energy sources in galaxies” in Dublin, Ireland (15-19 August, 2005)
- Völk, H.J.: Gamma-Ray Astronomy and the Origin of Cosmic Rays. At: Symposium “40 Years of LASR” at The University of Chicago, The Enrico Fermi Institute, Laboratory for Astrophysics and Space Research, Chicago, USA (2. Dezember, 2005)
- Zirakashvili, V.N.: Cosmic Ray Acceleration beyond the Knee up to the Ankle in Galactic Wind Halo. At: “Aspen Workshop on the Physics at the End of the Galactic Cosmic Ray Spectrum” in Aspen, Colorado, USA (25-30 April, 2005)

3.3 Seminare und Kolloquien:

- Aharonian, F.: Recent HESS results, Stanford University, USA, April 2005.
- Aharonian, F.: The Fascinating TeV Sky, University of California, Berkeley, USA, April 2005.
- Aharonian, F.: Astrophysics and Cosmology with TeV Gamma Rays, Batavia, USA, July 2005.

- Aharonian, F.: TeV Astrophysics, Notre Dame University, USA, July 2005.
- Berge, D.: H.E.S.S. observations of galactic shell-type supernova remnants, MPIK Heidelberg, 2. Juni 2005.
- Bernlöhr, K.: Hochenergetische Gammastrahlung aus der Milchstraße und die Suche nach der Herkunft der Cosmic Rays. Seminar, Universität Wuppertal, 26. April 2005.
- Funk, S.: Galactic Sources seen by H.E.S.S., MPIK Heidelberg, 17. November 2005.
- Hampel, W.: The significance of the GALLEX/GNO result for the solution of the Solar Neutrino Problem, MPIK, Heidelberg (3.2.05)
- Hinton, J.A.: The gamma-ray view of the centre of our Galaxy, MPIK Heidelberg, 23. Juni 2005.
- Hofmann, W.: Imaging Galactic Sources of High-Energy Gamma-Rays with H.E.S.S.. At: Particle Physics Seminar, CERN, Genf, 25. Januar 2005.
- Hofmann, W.: Detection of VHE Gamma Rays with the H.E.S.S. Telescopes. Seminar, FZ Karlsruhe, 1. Februar 2005.
- Hofmann, W.: The Galaxy Viewed in a New Light: High Energy Gamma Ray Astronomy with H.E.S.S. Seminar, Marseille, 4. April 2005.
- Hofmann, W.: Die Galaxis in einem neuen Licht – Gamma-Astronomie bei höchsten Energien. Kolloquium, Universität Mainz, 3. Mai 2005.
- Hofmann, W.: Die Galaxis in einem neuen Licht – Gamma-Astronomie bei höchsten Energien. Kolloquium, Universität Bonn, 13. Mai 2005.
- Hofmann, W.: Die Galaxis in einem neuen Licht – Gamma-Astronomie bei höchsten Energien. Kolloquium, Universität Heidelberg, 3. Juni 2005.
- Hofmann, W.: The Galaxy Viewed in TeV Gamma Rays – First Results from the H.E.S.S. Telescopes in Namibia. Kolloquium, Universität Bielefeld, 6. Juni 2005.
- Hofmann, W.: The Galaxy in a New Light – High Energy Gamma Ray Astronomy with H.E.S.S. Seminar, LNGS, Italy, 16. Juni 2005.
- Hofmann, W.: The Galaxy in a New Light – Gamma Ray Astronomy with H.E.S.S.. NIK-HEF Amsterdam, 7. Juli 2005.
- Hofmann, W.: Elementarteilchen aus dem Kosmos – Erfolge und offene Fragen der Astroteilchenphysik. Kolloquium, Universität Würzburg, 17. Oktober 2005.
- Hofmann, W.: Die Galaxis in einem neuen Licht – Gamma-Astronomie bei höchsten Energien Kolloquium, Universität Tübingen, 14. Dezember 2005.
- Krätschmer, W.: Fullerenes - New Forms of Carbon. At: L.V. Kurilov Institute of Physics, Akademgorodok, Krasnoyarsk, Russia
- Popescu, C.C.: Viewing the Dusty Universe, Swinburne University, Melbourne, Australia, April 2005
- Popescu, C.C.: Viewing the Dusty Universe, Research School of Astronomy and Astrophysics, Mount Stromlo Observatory, Canberra, Australia, May 2005
- Popescu, C.C.: Viewing the Dusty Universe, Anglo-Australian Observatory/ The Australia Telescope National Facility, Sydney, Australia, May 2005
- Popescu, C.C.: Viewing the Dusty Universe, Astronomical Institute of the University of Vienna, Austria, June 2005
- Popescu, C.C.: Viewing the Dusty Universe, Max-Planck Institut für Kernphysik, Heidelberg, Germany, June 2005
- Popescu, C.C.: From star-forming galaxies to protoplanetary disks and the origin of life, Royal Observatory, Edinburgh, UK, September 2005

- Popescu, C.C.: Viewing the Dusty Universe, Astronomisches Rechen-Institut, Heidelberg, December 2005
- Strel'nikov, D.: Selective Laser-induced oxidation of carbon molecules in cryogenic matrices: a method for species identification. Universität Basel, Schweiz
Kopfzeile Bamberg; Dr. Remeis-Sternwarte Strel'nikov, D.: Research on Carbon Molecules and Solids, Barnaul, Altai State University, Russia
- Tuffs, R.J.: Dust Emission from Galaxies: from Observations to Models, Steward Observatory, University of Arizona, Tucson, Arizona, USA, August 2005
- Tuffs, R.J.: Dust Emission from Galaxies: from Observations to Models, IPAC/Caltech, Pasadena, USA, October 2005
- Tuffs, R.J.: Dust Emission from Galaxies: from Observations to Models, Space Telescope Science Institute, Baltimore, USA, October 2005
- Tuffs, R.J.: Dust Emission from Galaxies: from Observations to Models, Mullard Radio Astronomy Observatory, Cavendish Laboratory, Cambridge, UK, November 2005
- Völk, H.J.: The Nonthermal Universe in Gamma-Rays – First Results of the H.E.S.S. Experiment. Colloquium at ASTRON/JIVE in Dwingeloo, The Netherlands (9. Juni, 2005)

3.4 Öffentliche Vorträge und Veranstaltungen:

- Hofmann, W.: Blaue Blitze aus dem Kosmos – auf der Jagd nach kosmischen Teilchenbeschleunigern. Physik am Samstagvormittag, Universität Bayreuth, 12. Februar 2005.
- Hofmann, W.: Die Jagd nach kosmischen Teilchenbeschleunigern: Blaue Blitze am afrikanischen Himmel. Physik am Samstagmorgen des MPI für Kernphysik, Heidelberg, 26. Februar 2005.
- Hofmann, W.: Blaue Blitze aus dem Kosmos – auf der Jagd nach kosmischen Teilchenbeschleunigern. Öffentlicher Abendvortrag, DESY, Hamburg, 7. Dezember 2005.

4 Mitarbeit in Gremien:

- Grün, E: European Space Science Committee; Co-I of Rosetta COSIMA; Co-I of Bepi-Colombo MMO Mercury Dust Counter; Co-I of Cassini Cosmic Dust Analyzer, CDA; Co-I of Ulysses Dust Detector; Co-Investigator im ISOPHOT-Konsortium
- Hofmann, W: Member of the “ApPEC peer review committee”; Member of the “Kommission für Astroteilchenphysik (KAT)”; Chair of the Advisory Board “Structure of Matter” of the Forschungszentrum Karlsruhe; Member of the “Gutachterausschuss Astroteilchenphysik des BMBF”; Member H.E.S.S. Collaboration Board; Spokesperson of the H.E.S.S. Collaboration
- Kempf, S: Co-I of Cassini Cosmic Dust Analyzer; Co-I of Ulysses Dust Detector
- Krätschmer, W.: Gutachter der Deutschen Forschungsgemeinschaft (DFG), Co-Investigator im ISOPHOT-Konsortium
- Popescu, C.C.: Member of the European Spica Instrument Consortium
- Srama, R: Arbeitsgemeinschaft Extraterrestrische Forschung; EUROPLANET; PI of Cassini Cosmic Dust Analyzer; Co-I of Ulysses Dust Detector
- Tuffs, R.J.: Member of the European Spica Instrument Consortium; Mitglied im ISOPHOT Instrument Team.
- Völk, H.J.: Mitglied der Programmkommission Raumfahrt des Deutschen Zentrums für

Luft- und Raumfahrt (DLR); Associate Member (IAU) to the IUPAP Commission on Cosmic Rays (C4); Mitglied Fachbeirat MPI für Radioastronomie, Bonn (bis September 2005); Member H.E.S.S. Collaboration Board; Chairperson H.E.S.S. Collaboration Board (bis Mai 2005); Coordinator European Associated Laboratory (LEA) on “High Energy Gamma-ray Astronomy” (bis 30. September 2005); Chairperson LEA Steering Committee (seit 30. September 2005); Member Steering Committee of “Astroparticle Physics European Coordination (ApPEC)”; Co-Investigator im ISOPHOT-Konsortium; MPG-Delegierter Stiftungsrat der “Hochalpinen Forschungsstationen auf dem Jungfraujoch und dem Gornergrat” (Internationale Stiftung), 2005

5 Preise:

Dr. J.A. Hinton erhielt den Shakti-P.-Duggal-Preis für herausragende Arbeiten junger Wissenschaftler auf dem Gebiet der Cosmic-Ray-Physik.

Die H.E.S.S.-Kollaboration zählte zu den 10 Finalisten für den Descartes Research Prize.

6 Veröffentlichungen

6.1 In Zeitschriften mit Referee-System:

Aharonian, F.A., Neronov, A.: TeV Gamma Rays From the Galactic Center Direct and Indirect Links to the Massive Black Hole in Sgr A*. *Astrophysics and Space Science* **300**, 255-265 (2005)

Aharonian, F.A., Neronov, A.: High Energy Gamma Rays From the Massive Black Hole in the Galactic Center. *Astrophysical Journal* **619**, 306-313 (2005).

Aharonian, F.A. et al. (HESS-Kollaboration): H.E.S.S. observations of PKS 2155-304. *Astronomy and Astrophysics* **430**, 865–875 (2005).

Aharonian, F.A. et al. (HEGRA-Kollaboration): The unidentified TeV source (TeV J2032 + 4130) and surrounding field: Final HEGRA IACT-system results. *Astronomy and Astrophysics* **431**, 197–202 (2005).

Aharonian, F.A. et al. (HESS-Kollaboration): Search for TeV emission from the region around PSR B1706-44 with the HESS experiment. *Astronomy and Astrophysics* **432**, L9–L12 (2005).

Aharonian, F.A. et al. (HESS-Kollaboration): Very high energy gamma-rays from the composite SNR G0.9+0.1. *Astronomy and Astrophysics* **432**, L25–L28 (2005).

Aharonian, F.A. et al. (HESS-Kollaboration): A New Population of Very High Energy Gamma-Ray Sources in the Milky Way. *Science* **307**, 1938–1942 (2005).

Aharonian, F.A. et al. (HESS-Kollaboration): Discovery of extended VHE gamma-ray emission from the asymmetric pulsar wind nebula in MSH 15-52 with HESS. *Astronomy and Astrophysics* **435**, L17–L20 (2005).

Aharonian, F.A. et al. (HESS-Kollaboration): Discovery of VHE gamma rays from PKS 2005-489. *Astronomy and Astrophysics* **436**, L17–L20 (2005).

Aharonian, F.A. et al. (HESS-Kollaboration): Observations of Mkn 421 in 2004 with HESS at large zenith angles. *Astronomy and Astrophysics* **437**, 95–99 (2005).

Aharonian, F.A. et al. (HESS-Kollaboration): Upper limits to the SN 1006 multi-TeV gamma-ray flux from HESS observations. *Astronomy and Astrophysics* **437**, 135–139 (2005).

- Aharonian, F.A. et al. (HESS-Kollaboration): Detection of TeV γ -ray emission from the shell-type supernova remnant RX J0852.0-4622 with HESS. *Astronomy and Astrophysics* **437**, L7–L10 (2005).
- Aharonian, F.A. et al. (HESS-Kollaboration): Discovery of Very High Energy Gamma Rays Associated with an X-ray Binary. *Science* **309**, 746–749 (2005).
- Aharonian, F.A. et al. (HEGRA-Kollaboration): TeV gamma-ray observations of SS-433 and a survey of the surrounding field with the HEGRA IACT-System. *Astronomy and Astrophysics* **439**, 635–643 (2005).
- Aharonian, F.A. et al. (HESS-Kollaboration): Serendipitous discovery of the unidentified extended TeV γ -ray source HESS J1303-631. *Astronomy and Astrophysics* **439**, 1013–1021 (2005).
- Aharonian, F.A. et al. (HESS-Kollaboration): Observations of selected AGN with HESS. *Astronomy and Astrophysics* **441**, 465–472 (2005).
- Aharonian, F.A. et al. (HESS-Kollaboration): Discovery of the binary pulsar PSR B1259-63 in very-high-energy gamma rays around periastron with HESS. *Astronomy and Astrophysics* **442**, 1–10 (2005).
- Aharonian, F.A. et al. (HESS-Kollaboration): A search for very high energy γ -ray emission from the starburst galaxy NGC 253 with HESS. *Astronomy and Astrophysics* **442**, 177–183 (2005).
- Aharonian, F.A. et al. (HESS-Kollaboration): Multi-wavelength observations of PKS 2155-304 with HESS. *Astronomy and Astrophysics* **442**, 895–907 (2005).
- Aharonian, F.A. et al. (HESS-Kollaboration): A possible association of the new VHE γ -ray source HESS J1825-137 with the pulsar wind nebula G18.0-0.7. *Astronomy and Astrophysics* **442**, L25–L29 (2005).
- Altmann, M., Balata, M., Belli, P., Bellotti, E., Bernabei, R., Burkert, E., Cattadori, C., Cerulli, R., Chiarini, M., Cribier, M., d'Angelo, S., Del Re, G., Ebert, K.H., v. Feilitzsch, F., Ferrari, N., Hampel, W., Hartmann, F.X., Henrich, E., Heusser, G., Kaether, F., Kiko, J., Kirsten, T., Lachenmaier, T., Lanfranchi, J., Laubenstein, M., Lützenkirchen, K., Mayer, K., Moegel, P., Motta, D., Nisi, S., Oehm, J., Pandola, L., Petricca, F., Potzel, W., Richter, H., Schöenert, S., Wallenius, M., Wojcik, M., Zanotti, L.: Complete results for five years of GNO solar neutrino observations, *Phys. Lett.* **B616**, 174-190 (2005)
- Altobelli, N., Kempf, S., Krüger, H., Landgraf, M., Roy, M., Grün, E.: Interstellar dust flux measurements by the Galileo dust instrument between the orbits of Venus and Mars. *Journal of Geophysical Research*, **110**, (2005)
- Blasi, P., Gabici, S., Vannoni, G.: On the role of injection in kinetic approaches to non-linear particle acceleration at non-relativistic shock waves. *Mon. Not. of Royal Astron. Soc.* **361**, 907-918 (2005).
- Bosch-Ramon, V., Aharonian, F.A., Paredes, J.M.: Electromagnetic radiation initiated by hadronic jets from microquasars in the ISM. *Astron. Astrophys* **432**, 609-618 (2005).
- Derishev, E.V., Aharonian, F.A., Kocharovsky, V.V.: The Converter Mechanism of Particle Acceleration and Its Applications to the Unidentified Egret Sources. *Astrophysics and Space Science* **279**, 21-30 (2005)
- Dikarev, V., Grün, E., Baggaley, J., Galligan, D., Landgraf, M., Jehn, R.: The new ESA meteoroid model. *Advances in Space Research*, **35**, 1282-1289 (2005)
- Dopita, M.A., Groves, B.A., Fischera, J., Sutherland, R.S, Tuffs, R.J., Popescu, C.C., Kewley, L.J., Reuland, M., & Leitherer, C.: Modelling the pan-spectral energy distribution of starburst galaxies: I. The role of the ISM pressure & the molecular cloud dissipation timescale, *ApJ* **619**, 755 (2005)

- Gabici, S. & Aharonian, F.A.: Point-like gamma ray sources as signatures of distant accelerators of ultra high energy cosmic rays. *Phys. Rev. Letters* **95**, id. 251102 (2005).
- Galbiati, C. et. al.: Cosmogenic ^{11}C production and sensitivity of organic scintillator detectors to pep and CNO neutrinos, *Phys. Rev. C* **71** 055805 (2005)
- Gil de Paz, A., Madore, B.F., Boissier, S., Swaters, R., Popescu, C.C., Tuffs, R.J., Sheth, K., Kennicutt, Jr., R.C., Bianchi, L., Thilker, D., & Martin, D.C.: Discovery of an Extended Ultraviolet Disk in the Nearby Galaxy NGC 4625, *ApJ Letter* **627**, L29 (2005)
- Grün, E., Srama, R., Krüger, H., Kempf, S., Dikarev, V., Helfert, S., Moragas-Klostermeyer, G.: 2002 Kuiper prize lecture: Dust Astronomy. *Icarus*, **174**, 1-14 (2005)
- Hiraga, J. Uchiyama, Y., Takahashi, T., Aharonian, F.: Spectral Properties of nonthermal X-ray emission from the shell-type SNR RX1713.7-3946 revealed by XMM-Newton. *Astron. Astrophys.* **431**, 953-961 (2005)
- Hirovani, K.: Gamma-Ray Emission from Pulsar Outer Magnetospheres. *Ap&SS* **297**, 81 (2005)
- Hirovani, K.: Kinetic Luminosity and Composition of Active Galactic Nuclei Jets. *ApJ* **619**, 73 (2005)
- Hirovani, K.: High energy emission from pulsars: Outer gap scenario. *Advances in Space Research* **35**, 1085 (2005)
- Inoue, S., Aharonian, F.A., Sugiyama, N.: Hard X-ray and Gamma-ray Emission Induced by Ultra-High Energy Protons in Cluster Accretion Shocks. *Astronomical Journal (Letters)* **628**, L9-L12 (2005).
- Kataoka, J., Stawarz, L.: X-Ray Emission Properties of Large-Scale Jets, Hot Spots, and Lobes in Active Galactic Nuclei. *Astrophysical Journal* **622**, 797-810 (2005).
- Kempf, S., Srama, R., Postberg, F., Burton, M., Green, S.F., Helfert, S., Hillier, J.K., McBride, N., McDonnell, J.A.M., Moragas-Klostermeyer, G., Roy, M., Grün, E.: Composition of Saturnian Stream Particles Science, **307**, 1274-1276 (2005)
- Kirk, J.: Relativistic Plasmas in pulsar winds. In: *Plasma Physics and Controlled Fusion* **47**, 12B, B719-B726 (2005).
- Kirk, J.G.: Observational Constraints on Pulsar Wind Theories. *Memorie della Societa Astronomica Italiana*, **76**, p.494 (2005)
- Krüger, H., Linkert, G., Linkert, D., Moissl, R., Grün, E.: Galileo long-term dust monitoring in the jovian magnetosphere. *Planetary and Space Science*, **53**, 1109-1120 (2005)
- Ksenofontov, L.T., Berezhko, E.G., Völk, H.J.: Dependence of the gamma-ray emission from SN 1006 on the astronomical parameters. In: *Astronomy & Astrophysics* **443**, 973-980 (2005)
- Lukasz, S., Siemiginowska, A., Ostrowski, M., Sikora, M.: On the Magnetic Field in the Kiloparsec-Scale Jet of Radio Galaxy M87. *Astrophysical Journal* **626**, 120-127 (2005).
- Mastichiadis, A., Protheroe, R.J., Kirk, J.G.: Spectral and temporal signatures of ultrarelativistic protons in compact sources. I. Effects of Bethe-Heitler pair production. *A&A* **433**, 765 (2005)
- Moderski, R., Sikora, M., Coppi, P.S., Aharonian, F.A.: Klein-Nishina Effects in the Spectra of Non-Thermal Sources Immersed in External Radiation Fields. *Mon. Not. of Royal Astron. Soc.* **363**, 954-966 (2005).
- Motta, D. et. al.: Prototype scintillator cell for an In-based solar neutrino detector, *Nucl. Instrum. Meth.* **A547**, 368-388 (2005)
- Motta, D. and Schönert, S.: Optical properties of bialkali photocathodes *Nuclear Inst. and*

- Methods in Physics Research, A **539/1-2**, pp. 217-235 (2005)
- Pétri, J., Kirk, J. G.: The Polarization of High-Energy Pulsar Radiation in the Striped Wind Model. *ApJL* **627** L37 (2005)
- Pétri, J.: A toy model for coupling accretion disk oscillations to the neutron star spin. *A&A* **443**, 777 (2005)
- Pétri, J.: An explanation for the kHz-QPO twin peaks separation in slow and fast rotators. *A&A Letters* **439**, L27 (2005)
- Pétri, J.: Forced oscillations in magnetized accretion disks and QPOs. *A&A* **439**, 443 (2005)
- Popescu, C.C., Tufts, R.J., Madore, B.F., Gil de Paz, A., Völk, H.J., and the GALEX team: A comparative study of the spatial distribution of ultraviolet and far-infrared fluxes from M 101, *ApJ Letters* **619**, L75 (2005)
- Rykoff, E. et al. (ROTSE Collaboration): Prompt Optical Detection of GRB 050401 with ROTSE-IIIa. *Astrophysical Journal* **631**, L121-L124 (2005).
- Rykoff, E. et al. (ROTSE Collaboration): A Search for Untriggered GRB Afterglows with ROTSE-III. *Astrophysical Journal* **631**, 1032-1038 (2005).
- Strel'nikov, D., Reusch, R. and Krätschmer, W.: Assignment of Carbon Chain Molecules in Cryogenic Matrices by Selective LASER-Induced Oxidation, *J. Phys. Chem. A* **109**, 7708 (2005)
- Völk, H.J., Berezhko, E.G., and Ksenofontov, L.T.: Magnetic Field Amplification in Tycho and other Shell-type Supernova Remnants. In: *Astronomy & Astrophysics* **433**, 229-240 (2005)
- Willis, M.J., Burchell, M.J., Ahrens, T.J., Krüger, H., Grün, E.: Decreased values of cosmic dust number density estimates in the Solar System. *Icarus*, **176**, 440-452 (2005)
- Zirakashvili V.N.: Cosmic Ray Anisotropy Problem. In: *Intern. Journal of Modern Physics A*, **20**, 6858-6860 (2005)

6.2 Eingeladene Beiträge und Reviews:

- Hofmann, W.: Status of ground-based gamma-ray astronomy. In: *High Energy Gamma-Ray Astronomy*, (Eds.) F.A. Aharonian, H. Völk, D. Horns, *AIP Conf. Proc.* **745**, 246-259 (2005).
- Kirk, J. G.: Particle Acceleration in Gamma-Ray Bursts. *Cosmic Explosions, On the 10th Anniversary of SN1993J. Proceedings of IAU Colloquium 192*. Eds. J.M. Marcaide and Kurt W. Weiler. *Springer Proceedings in Physics*, vol. 99. Berlin: Springer, p.475 (2005)
- Popescu, C.C & Tufts R.J.: Modelling the ultraviolet/submillimeter spectral energy distributions of normal galaxies, in *Proceedings of the International Workshop: "The Spectral Energy Distribution of Gas-Rich Galaxies: Confronting Models with Data"*, Heidelberg, 4-8 October 2004, eds. C.C. Popescu & R.J. Tufts, *AIP Conference Proceedings*, Vol. 761, p.155 (2005)
- Sauvage, M., Tufts, R.J., & Popescu, C.C.: Normal Nearby Galaxies, in "ISO science legacy - a compact review of ISO major achievements", *Space Science Reviews*, eds. C. Cesarsky and A. Salama, Springer Science + Business Media, Inc., vol. 119, Issue 1-4, p. 313 (2005)
- Tufts, R.J. & Popescu, C.C: Normal Gas-Rich Galaxies in the Far-Infrared - the Legacy of ISOPHOT, in *Proceedings of the International Workshop: "The Spectral Energy Distribution of Gas-Rich Galaxies: Confronting Models with Data"*, Heidelberg, 4-8

October 2004, eds. C.C. Popescu & R.J. Tuffs, AIP Conference Proceedings, Vol. 761, p.344 (2005)

Wakabayashi, T. and Krätschmer, W.: Carbon Chain Molecules in Cryogenic Matrices. In: Polyynes-Synthesis, Properties, and Applications, ed. Franco Caltaldo, Taylor and Francis Group ISBN 1-57444-512-X, 1-13 (2005)

6.3 Konferenzberichte und Sammelbände:

Beilicke, M. et al. (HESS–Kollaboration): Discovery of an unidentified TeV source in the field of view of PSR B1259-63 with H.E.S.S. In: High Energy Gamma-Ray Astronomy, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 347–352 (2005).

Benbow, W. (HESS–Kollaboration): The status and performance of H.E.S.S. In: High Energy Gamma-Ray Astronomy, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 611–616 (2005).

Berge, D. et al. (HESS–Kollaboration): Observations of SNR RX J1713.7-3946 with H.E.S.S. In: High Energy Gamma-Ray Astronomy, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 263–268 (2005).

Bosch-Ramon, V., Aharonian, F.A., Paredes, J.M.: Broad-band electromagnetic radiation from microquasars interacting with ISM, in High Energy Gamma-Ray Astronomy: 2nd International Symposium, Proceedings of the conference held 26-30 July 2004 in Heidelberg (Germany). Eds. Felix A. Aharonian, Heinz J. Völk, and Dieter Horns. AIP Conference Proceedings, Volume 745. New York: American Institute of Physics, pp 317-322 (2005)

Cornils, R. et al. (HESS–Kollaboration): Point spread function and long-term stability of the H.E.S.S. reflectors. In: High Energy Gamma-Ray Astronomy, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 736–741 (2005).

Costamante, L., Benbow, W., Horns, D., Reimer, A., Reimer, O., Hess Collaboration: On the intrinsic spectrum of PKS 2155-304 from H.E.S.S. 2003 data in High Energy Gamma-Ray Astronomy: 2nd International Symposium, Proceedings of the conference held 26-30 July 2004 in Heidelberg (Germany). Eds. Felix A. Aharonian, Heinz J. Völk, and Dieter Horns. AIP Conference Proceedings, Volume 745. New York: American Institute of Physics, pp 449-454 (2005)

Derishev, E.V., Aharonian, F.A., Kocharovskiy, V.I.: High-energy emission from off-axis relativistic jets, in High Energy Gamma-Ray Astronomy: 2nd International Symposium, Proceedings of the conference held 26-30 July 2004 in Heidelberg (Germany). Eds. Felix A. Aharonian, Heinz J. Völk, and Dieter Horns. AIP Conference Proceedings, Volume 745. New York: American Institute of Physics, pp.510-515 (2005)

Dopita, M.A., Brent A. Groves, B.A., Fischera, J., Sutherland, R.S., Tuffs, R.J., Popescu, C.C., Kewley, L.J., Brandl, B.R., Reuland, M., Röttgering, H., & Leitherer, C.: Starburst galaxies in the far-infrared. Modelling the line, PAH and dust continuum emission, Short Contributions presented at the 79th Annual Scientific Meeting of the Astronomische Gesellschaft “The many facets of the universe - Revelations by New Instruments”, 26 September - 1 October 2005, Köln, Germany, AN 326, p. 526, edited by Siegfried Röser (2005)

Funk, S. et al. (HESS–Kollaboration): The central trigger system of the H.E.S.S. telescope array. In: High Energy Gamma-Ray Astronomy, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 753–757 (2005).

Gillessen, S. et al. (HESS–Kollaboration): Locating the TeV-excess from the Galactic centre region. In: High Energy Gamma-Ray Astronomy, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 758–763 (2005).

- Hermann, G. (HESS–Kollaboration): Observational highlights from the H.E.S.S. experiment. In: *Astrophysical sources of high energy particles and radiation*, (Eds.) T. Bulik, B. Rudak, G. Madejski, AIP Conf. Proc. **801**, 43–48 (2005).
- Horns, D., Beilicke, M., Benbow, W., Lemire, A., de Naurois, M., Rolland, L., Rowell, G. P.: Large zenith angle observations of flares from Mkn 421 in 2004 with H.E.S.S., in *High Energy Gamma-Ray Astronomy: 2nd International Symposium, Proceedings of the conference held 26-30 July 2004 in Heidelberg (Germany)*. Eds. Felix A. Aharonian, Heinz J. Völk, and Dieter Horns. AIP Conference Proceedings, Volume 745. New York: American Institute of Physics, pp 468-474 (2005)
- Khangulyan, D., Aharonian, F.: On the formation of energy spectra of synchrotron X-rays and inverse Compton gamma-rays in binary systems with luminous optical stars, in *High Energy Gamma-Ray Astronomy: 2nd International Symposium, Proceedings of the conference held 26-30 July 2004 in Heidelberg (Germany)*. Eds. Felix A. Aharonian, Heinz J. Völk, and Dieter Horns. AIP Conference Proceedings, Volume 745. New York: American Institute of Physics, pp 359-364 (2005)
- Khélifi, B. et al. (HESS–Kollaboration): TeV gamma-ray observations of pulsar wind nebulae with the HESS detector. *Advances in Space Research* **35**, 1148–1151 (2005).
- Khélifi, B. et al. (HESS–Kollaboration): Search for TeV emission from the direction of the Vela and PSR B1706-44 pulsars with the H.E.S.S. experiment. In: *High Energy Gamma-Ray Astronomy*, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 335–340 (2005).
- Kirk, J., L. Ball and S. Johnston: The high-energy light curve of PSR B1259-63. In: *Astrophysical sources of high energy particles and radiation*, (Eds.) Tomasz Bulik et al. AIP Conference Proceedings **801**. American Institute of Physics, 286-289 (2005).
- Ksenofontov, L.T., Berezhko, E.G., Völk, H.J.: Gamma-ray Models for SN 1006 using different astronomical parameters. In: *Proc. Int. Symp. on High Energy Gamma-Ray Astronomy, Heidelberg*, ed. F.A. Aharonian, D. Horns & H.J. Völk (Melville, New York: AIP), 281-286 (2005)
- Masterson, C. et al. (HESS–Kollaboration): Observations of the Crab Nebula with H.E.S.S.: In: *High Energy Gamma-Ray Astronomy*, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 617–621 (2005).
- Neronov, A., Aharonian, F.: TeV gamma rays from Sgr A*, in *High Energy Gamma-Ray Astronomy: 2nd International Symposium, Proceedings of the conference held 26-30 July 2004 in Heidelberg (Germany)*. Eds. Felix A. Aharonian, Heinz J. Völk, and Dieter Horns. AIP Conference Proceedings, Volume 745. New York: American Institute of Physics, pp. 409-415 (2005)
- Pétri, J.: Forced oscillations in accretion disks and kHz QPOs. *INTERACTING BINARIES: Accretion, Evolution, and Outcomes*. AIP Conference Proceedings **797**, pp. 599-602 (2005).
- Pétri, J. and J. Kirk: Polarization of high-energy emission in a pulsar striped wind. In : *Astrophysical sources of high energy particles and radiation*, (Eds.) Tomasz Bulik et al. AIP Conference Proceedings **801**. American Institute of Physics, 290-293 (2005)
- Popescu, C.C., Tuffs, R.J., Madore, B.F., Gil de Paz, A., Völk, H.J. and the GALEX team: A comparative study of the spatial distribution of ultraviolet and far-infrared fluxes from M101. in *Proceedings of “The Dusty and Molecular Universe: A Prelude to Herschel and ALMA”*, meeting held in Paris, France, October 27-29, 2004, Ed.: A. Wilson. ESA SP-577, Noordwijk, Netherlands: ESA Publications Division, ISBN 92-9092-855-7, p.313 (2005)
- Popescu, C.C. & Tuffs, R.J.: Modelling the spectral energy distribution of spiral galaxies from the UV to FIR/submm, in *Proceedings of “The Dusty and Molecular Universe: A Prelude to Herschel and ALMA”*, meeting held in Paris, France, October 27-29, 2004,

- Eds.: A. Wilson. ESA SP-577, Noordwijk, Netherlands: ESA Publications Division, ISBN 92-9092-855-7, p.311 (2005)
- Popescu, C.C., & Tuffs, R.J.: Modelling far-infrared emission from dust in gas-rich galaxies, Short Contributions presented at the 79th Annual Scientific Meeting of the Astronomische Gesellschaft "The many facets of the universe - Revelations by New Instruments", 26 September - 1 October 2005, Köln, Germany, AN 326, p. 528, edited by Siegfried Röser (2005)
- Rowell, G., et al. (HESS-Kollaboration): Preliminary results from a search for TeV gamma-ray emission from SN1987A and the surrounding field with H.E.S.S., in High Energy Gamma-Ray Astronomy: 2nd International Symposium, Proceedings of the conference held 26-30 July 2004 in Heidelberg (Germany). Eds. Felix A. Aharonian, Heinz J. Völk, and Dieter Horns. AIP Conference Proceedings, Volume 745. New York: American Institute of Physics, pp 299-304 (2005)
- Schlenker, S. et al. (HESS-Kollaboration): Discovery of the binary pulsar PSR B1259-63 in VHE gamma rays. In: High Energy Gamma-Ray Astronomy, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 341-346 (2005).
- Schmidt, F. et al. (HESS-Kollaboration): Search for pulsed TeV gamma-ray emission from young pulsars with H.E.S.S.. In: High Energy Gamma-Ray Astronomy, (Eds.) F.A. Aharonian, H. Völk, D. Horns, AIP Conf. Proc. **745**, 377-381 (2005).
- Tuffs, R.J. & Popescu, C.C. & Völk, H.J.: The Nature of the Cold Dust Surrounding Gas-Rich Dwarf Galaxies in the Virgo Cluster, in Proceedings of "The Dusty and Molecular Universe: A Prelude to Herschel and ALMA", meeting held in Paris, France, October 27-29, 2004, Ed.: A. Wilson. ESA SP-577, Noordwijk, Netherlands: ESA Publications Division, ISBN 92-9092-855-7, p.333 (2005)
- Tuffs, R.J., Popescu, C.C. & Völk, H.J.: Far-Infrared Mapping of Cassiopeia A with ISO-PHOT, in Proceedings of "The Dusty and Molecular Universe: A Prelude to Herschel and ALMA", meeting held in Paris, France, October 27-29, 2004, Ed.: A. Wilson., ESA SP-577, Noordwijk, Netherlands: ESA Publications Division, ISBN 92-9092-855-7, p.427 (2005)
- Tuffs, R.J. & Popescu, C.C.: Observations of far-infrared emission from dust in gas-rich galaxies, Short Contributions presented at the 79th Annual Scientific Meeting of the Astronomische Gesellschaft "The many facets of the universe - Revelations by New Instruments", 26 September - 1 October 2005, Köln, Germany, AN 326, p. 533, edited by Siegfried Röser (2005)
- Uchiyama, Y., Aharonian, F.A., Takahashi, T., Hiraga, J.S., Moriguchi, Y., Fukui, Y.: Nonthermal X-radiation of SNR RX J1713.7-3946: The Relations to a Nearby Molecular Cloud, in High Energy Gamma-Ray Astronomy: 2nd International Symposium, Proceedings of the conference held 26-30 July 2004 in Heidelberg (Germany). Eds. Felix A. Aharonian, Heinz J. Völk, and Dieter Horns. AIP Conference Proceedings, Volume 745. New York: American Institute of Physics, pp 305-310 (2005)
- Völk, H.J.: High Energy Gamma-Ray Astronomy. In: Proc. 8th International Workshop on Topics in Astroparticle and Underground Physics (TAUP2003), University of Washington, Seattle, USA; published in: Nuclear Physics (Proc. Suppl.) **138**, 492-501 (2005)

6.4 Bücher:

- Aharonian, F.A., Völk, H.J, Horns, D. (Eds.): High Energy Gamma-Ray Astronomy, AIP Conference Proceedings, Volume 745. New York: American Institute of Physics, (2005).

Popescu, C.C. & R.J. Tuffs (Eds.): The Spectral Energy Distribution of Gas-Rich Galaxies: Confronting Models with Data, Proceeding of an international Workshop held in Heidelberg, 4-8 October 2004, AIP Conference Proceedings, Vol. 761 (2005)

6.5 Populärwissenschaftliche Schriften:

Hofmann, W.: HESS provides new view of gamma-ray sky. CERN Courier **45**, No. 1, 30–32 (2005).

6.6 Diplomarbeiten:

Bühler, R.: Detektion schwerer Kerne in der kosmischen Höhenstrahlung mit HESS, Ruprecht-Karls-Universität Heidelberg, 2005

Egberts, K.: Das Spektrum der kosmischen Elektronen gemessen mit H.E.S.S., Ruprecht-Karls-Universität Heidelberg, 2005

Moissl, R.: Galileos Staubbmessungen in Jupiters Gossamer Ringen. Ruprecht-Karls-Universität Heidelberg, 2005

6.7 Dissertationen:

Franco, D.: The Borexino Experiment: Test of the Purification Systems and Data Analysis in the Counting Test Facility Dissertation, Univ. Milano and Univ. Heidelberg, 2005

Funk, S.: A new population of very high-energy γ -ray sources detected with H.E.S.S. in the inner part of the Milky Way, Ruprecht-Karls Universität Heidelberg, 2005

Rachev, M.: A new time-of-flight spectrometer for impact generated ions, Ruprecht-Karls Universität Heidelberg, 2005

Reusch, R.: Absorptionsspektroskopie von langen ungeraden Kohlenstoff-Kettenmolekülen und deren Oxide in kryogenen Matrizen., Ruprecht-Karls Universität Heidelberg, 2005

Srowig, A.: Trajectory sensor and read-out electronics of a cosmic dust telescope, Ruprecht-Karls Universität Heidelberg, 2005

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