

## Aharonian Felix A.

Positions: Professor of the Cosmic School of the Dublin  
Institute for Advanced Studies (DIAS) and  
Director of the Center for Astroparticle Physics  
and Astrophysics at DIAS, Dublin, Ireland  
and  
Head of High Energy Astrophysics Theory Group,  
MPI for Nuclear Physics, Heidelberg, Germany



Fields of Research: High Energy Astrophysics, Astroparticle Physics, Cosmology

### Scientific Work

#### *Involvement in major Projects:*

Member (representative of ESA) of the Science Working Group of the JAXA-NASA X-ray mission ASTRO-H (X-ray Astronomy)  
Member of the H.E.S.S. Collaboration Board (gamma-ray astronomy)  
Member of the KM3NeT Consortium Board (neutrino astronomy)  
Co-PI of the ROTSE network of optical telescopes (GRB afterglows)

#### *Panels, Committees, Schools*

Co-director of LEA - European Associated Laboratory on High Energy Astrophysics  
jointly supported by CNRS (France) and MPG (Germany)  
Scientific Advisor of the High Energy Astrophysics Laboratory, Yerevan, Armenia  
Adjunct Professor, School of Physics, University College Dublin (USD)  
Adjunct Professor and member of the International Center for Relativistic Astrophysics, Rome/Pescara, Italy  
Member ("Supervisor") of the Heidelberg Graduate School of Fundamental Physics,  
Member of the International Review Board of the Helmholtz Association on Astroparticle Physics  
Member of the European ASTRONET Infrastructure Roadmap Panel A:  
"High energy astrophysics, astro-particle physics and gravitational waves"  
Editor of the International Journal of Modern Physics D

#### *PostDocs and Students:*

DIAS/Dublin: three postdoctoral fellows and four PhD students  
MPIK/Heidelberg: six postdoctoral fellows and four PhD students  
ICRANET/Pescara: one PhD student

#### *Lectures in 2010*

Frontiers in High Energy Astrophysics,  
27th Jerusalem Winter School in Theoretical Physics,  
Jerusalem, Israel, December 2009 – January 2010

40th Saas-Fee Lecture Series: Astrophysics at Very High Energies,  
Les Diablerets, Switzerland, March 15-20, 2010

#### *Organization of International Workshops, Symposia, Conferences (2010)*

The GeV to TeV Connection: Science at 10 GeV to 100 GeV, Ringberg Castle,

Germany, Jan 11-16 (together with W. Hofmann, S.Wagner, F. Rieger, M. Rau)

Exploring Supernova Remnants and Pulsar Wind Nebulae in X-rays: before and after ASTRO-H, ISAS, Tokyo, Japan, February 18-19 (together with A. Bamba)

Variable Galactic Gamma-Ray Sources, Heidelberg, Germany, Nov 29-Dec 3, 2010  
(together with V. Bosch-Ramon and D. Khangulyan)

25th Texas Symposium on Relativistic Astrophysics, Heidelberg, Germany, Dec 6-11  
(together with W. Hofmann)

### Service activities

*Within ICRANet*

Supervision on a PhD student - Narek Sahakian

Close collaboration with an ICRANET associate - Prof. Francesco Vissani

Participation and talk at the "The second Galileo - Xu Guangqi" meeting, July 12-18, 2010.

### 2010 List of Publications (in peer-reviewed journals)

(more than 300 papers in peer review journals –

see <http://www.mpi-hd.mpg.de/astrophysik/HEA/1024.html>)

V.N. Zirakashvili, F.A. Aharonian: Nonthermal Radiation of Young Supernova Remnants: The Case of RX J1713.7-3946, *Astrophys.J.*, 2010, vol. 708, pp. 965-980

S.Casanova, D. Jones, F.A. Aharonian, Y. Fukui, S. Gabici, A. Kawamura, T. Onishi, G. Rowell, H. Sano, K. Torii, H. Yamamoto: Modeling the gamma-ray emission produced by runaway cosmic rays in the environment of RX J1713.7-3946. *Publ. Astron. Soc. Jap.*, 2010, vol. 62, 1127-1134

F.Yuan, P. Schady, ... F.A. Aharonian, ... J. Wren: GRB 081008: From Burst to Afterglow and the Transition Phase in Between, *Astrophys. J.*, 2010, vol. 711, pp. 870-880

F.A. Aharonian, A. Taylor: Limitations on the Photo-disintegration Process as a Source of VHE Photons, *Astroparticle Physics*, 2010, in press (arXiv:1005.3230)

M. Barkov, F.A. Aharonian, V. Bosch-Ramon: Gamma-ray flares from red giant/jet interactions in AGN, *Astrophys.J.*, 2010, in press (arXiv:1005.5252)

A. Giuliani, M. Tavani, ...F.Aharonian, ... L. Salotti: AGILE detection of GeV  $\gamma$ -ray emission from the SNR W28, *Astron. Astrophys.*, 2010, vol. 516, L11-L14

F. Yuan, R.M. Quimby, J.C. Wheeler, J. Vinko, E. Chatzopoulos, C.W. Akerlof, S. Kulkarni, J.M. Miller, T. McKay, F. Aharonian: The Exceptionally Luminous Type Ia Supernova 2007if, *Astrophys. J.*, 2010, vol. 715, pp. 1338-1343

S. Casanova, F.A. Aharonian, Y. Fukui, S. Gabici, D. Jones, A. Kawamura, T. Onishi, Toshikazu, G. Rowell, H. Sano, K. Torii, H. Yamamoto: Molecular Clouds as Cosmic-Ray Barometers, *Publications of the Astronomical Society of Japan*, 2010, vol.62, pp.769-777

R.M. Crocker, F.A. Aharonian: The Fermi Bubbles: Giant, Multi-Billion-Year-Old Reservoirs of Galactic Center Cosmic, *Phys Rev. Letters*, 2010, submitted (arXiv:1008.2658)

F.A. Aharonian, S.R. Kelner, A.Yu. Prosekin: Angular, spectral, and time distributions of highest energy protons and associated secondary gamma rays and neutrinos propagating through extragalactic magnetic and radiation fields, *Physical Review D*, vol. 82, Issue 4, id. 043002

M. Chernyakova, D. Malyshev, F.A. Aharonian, R.M. Crocker, D.I. Jones: Galactic center at very high-energies, *Astrophys.J.*, 2010, in press (eprint arXiv:1009.2630)

O. Zacharopoulou, D. Khangulyan, F.A. Aharonian, L. Costamante: Modeling hard gamma-ray spectra blazars, *Astrophys.J.*, 2010 (submitted)

D. Malyshev, S. Gabici, L. Drury, F.A. Aharonian: A simple model for electron plasma heating in supernova remnants, *Astron. Astrophys.*, 2010, vol. 521, id.A14

R.M. Crocker, D.I. Jones, F.A. Aharonian, C. Law, F. Melia, J. Ott: Gamma-Rays and the Far-Infrared-Radio Continuum Correlation Reveal a Powerful Galactic Centr Wind, 2010, *MNRAS*, submitted (arXiv:1009.4340)

F.Vissani, F.A. Aharonian, N.V. Sahakian: "On the prospects of High Energy Galactic Neutrino Astronomy", *Astroparticle Physics*, 2010, submitted

plus 11 "HESS collaboration" papers

*Books:*

F. A. Aharonian and S.R. Kelner "Radiation Processes in High Energy Astrophysics", Oxford University Press, in preparation

F. A. Aharonian "Very high energy cosmic gamma radiation : a crucial window on the extreme Universe", World Scientific Publishing, second edition, in preparation