

CURRICULUM VITAE (June 2011)

Mehdi Khakian Ghomi

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EDUCATION (Higher degrees)

- **Feb 2006 to March 2008**, PostDoc, Sharif University of Technology,
- **May 2006 to August 2006**, collaboration, Astrophysical Research on Ground based Observatory (ARGO-YBJ) project, Lecce, Italy,
- **Jan. 2005 to March 2006**, Post-Doc, IASBS,
- **1998-2004**, PhD in Physics, Sharif Univ. of Tech., Tehran, Iran.
- **1995-1997**, MSc in Physics, Sharif Univ. of Tech., Tehran, Iran.
- **1990-1995**, BSc in Physics, Sharif Univ. of Tech., Tehran, Iran.
- **1986-1990**, High School Diploma, 22 Bahman High School, Tehran, Iran.

KHARAZMI INTERNATIONAL AWARD

J. Samimi, M. Bahmanabadi, A. Anvari, M. Lamahi Rachti, M. Khakian Ghomi, *Observation of TeV Emission from EGRET gamma-Ray Point Sources*, **First Winner, Basic Research, 19th Kharazmi International Award**, Feb. 2006, Tehran, Iran.

SCIENTIFIC PUBLICATIONS (Authors, Title, Journal)

- H. Hedayati, A. Anvari, M. Bahmanabadi, M. Khakian Ghomi, J. Samimi *A New Simple Method for the Analysis of Extensive Air Showers*, *Astroparticle Physics* **D-08-00133R3**, 2011
- H. Hedayati, A. Anvari, M. Bahmanabadi, M. Khakian Ghomi, J. Samimi *A new method for finding core location of extensive air showers*, *The Astrophysical Journal* **727:66**(7pp), 2011, February 1.

- M. Khakian Ghomi, M. Bahmanabadi, H. Hedayati, F. Sheidaei, A. Anvari, J. Samimi *Study of EAS inclination due to geomagnetic field by 50 TeV to 5 PeV CORSIKA simulated events*, 31st International Cosmic Ray Conference (ICRC2009), **574**, Lodz Poland.
- M. Khakian Ghomi, S. Bayesteh, M. Bahmanabadi, H. Hedayati, F. Sheidaei, A. Anvari, J. Samimi *Search for Gamma-Ray events in ALBORZ observatory data*, 31st International Cosmic Ray Conference (ICRC2009), **575**, Lodz Poland.
- H. Hedayati, A. Anvari, E. Ansari, M. Khakian Ghomi, M. Bahmanabadi, J. Samimi *Another approach for finding cor location of extensive air showers*, 31st International Cosmic Ray Conference (ICRC2009), **1042** Lodz Poland.
- S.M.H. Halataei, M. Bahmanabadi, M. Khakian Ghomi, J. Samimi *A simulation study of of secondary particles in extensive air showers using CORSIKA code*, Physical Review D (2008), 2008PhRvD..77h3001H.
- M. Khakian Ghomi, M. Bahmanabadi, J. Samimi, F.sheidaei, A. Shadkam, A. Anvari *Investigation of atmosphere thickness on EAS events by an array of particle detectors and CORSIKA simulations*, 30th ICRC, **266**(2007), HE.1.1.
- M. Khakian Ghomi, M. Bahmanabadi, J. Samimi, F.sheidaei, A. Shadkam, A. Anvari *Investigation of Geomagnetic field effect on azimuth distribution of EAS events*, 30th ICRC, **263**(2007), HE.1.1.
- F. Sheidaei, M. Bahmanabadi, M. Khakian Ghomi, J. Samimi, A. Anvari *Development of an array of Water Cherenkov Detectors for extensive air shower experiment*, 30th ICRC, **262**(2007), HE.1.1.
- F. Sheidaei, M. Bahmanabadi, M. Khakian Ghomi, S.K. Mahdavi, J. Samimi, A. Anvari *On shadow of the moon in extensive Air shower data*, submitted to A&A. 2007arXiv 0706.1441S.
- F. Sheidaei, M. Bahmanabadi, A. Keivani, M. Khakian Ghomi, J. Samimi, A. Shadkam *A study on anisotropy of cosmic ray distribution with a small array of water cherenkov detectors*, Accepted by PhRvD, 2007 arXiv0705.4234S.
- M. Bahmanabadi, M. Khakian Ghomi, F. Sheidaei, J. Samimi, *Galactic anisotropy of cosmic ray intensity observed by an air shower Experiment*, PASA, 2006, PASA, 23, 129B.
- M. Khakian Ghomi, J. Samimi, M. Bahmanabadi, A.Anvari, *Investigation of Energy Spectrum of EGRET Gamma-Ray Sources by an Extensive Air Shower Experiment*, A&A 2006, Submitted to Journal of sciences 2007arXiv 0704.1122k.
- M. Bahmanabadi, M. Khakian Ghomi, F. Sheidaei, *The Charge Ratio of Atmospheric Muons at Low Energy*, Physical Review D 2006, 74h, 2006B.
- M. Khakian Ghomi, J. Samimi, M. Bahmanabadi, *Investigation of EGRET Gamma-Ray Sources by an Extensive Air Shower Experiment*, 29th ICRC, **6**(2005), 29-32.

- M. Bahmanabadi, M. Khakian Ghomi, F. Sheidaei, *Experimental Studies of Positive and Negative Atmospheric Muons with a Cosmic Rays Telescope*, *Astroparticle Physics*, 24(2005), 183-190.
- M. Khakian Ghomi, M. Bahmanabadi, J. Samimi, *Observation of EGRET Gamma-Ray Sources by an Extensive Air Shower Experiment*, *A&A* 434, 459, 2005.
- M. Bahmanabadi, M. Khakian Ghomi, D. Purmohammad, J. Samimi, *An Investigation on Anisotropy of Cosmic Rays with a Small Array*, *Experimental Astronomy*, 15: 13-27, 2003.
- M. Bahmanabadi, A. Anvari, M. Khakian Ghomi, D. Purmohammad, J. Samimi, M. Lamehi Rachti, *A Study of The Effect of Geomagnetic Field on Extensive Air Showers with Small Arrays*, *Experimental Astronomy*, 13: 39-57, 2002.
- M. Bahmanabadi, M. Khakian Ghomi, D. Purmohammad, J. Samimi, *Extensive Air Shower Studies with Small Arrays*, ICRC 2001.
- M. Khakian Ghomi, *Estimation of Some Astronomical Constants with Daily Information*, *Physics Department Magazine*, June 1996, P:3-4 (In Persian).

DONE PROJECTS

- Meteorological prediction by using statistical methods over 58 year Mehrabad Airport data
- Accumulating of Stars Information and Constellations, with Naked Eye Observation and Photographing, (**BSc Project**).
- Design, Construction and Testing of a Multilayered Anti-Reflecting Filter in the Visible Range, (**MSc Project**).
- Investigation of Gamma rays and Cosmic rays : via Extensive Air Showers, using a small scintillation detector array, (**PhD Project**).

RESEARCH EXPERIENCES

- Simulation of Extensive Air Showers by direct Programming (Pascal & Fortran).
- Simulation of Extensive Air Showers by CORSIKA code and extended analysis of the simulated events.
- Data analysis and simulation of Extensive air showers.
- Experimental Research in CR Physics with an 'EAS' Array in ShUT.

- Construction And Experiment on a Flash Tube as a Cosmic Ray Tracking (CRT) Detector (A kind of Hodoscope).
- Construction And Experiment on a Spark Chamber as a CRT Detector.
- Data Acquisition of EASs.
- Some Studies on Shock Acceleration Mechanisms of Cosmic Rays.

SPRING AND SUMMER SCHOOLS

- **August 2004** Summer School on Non-Accelerator Astroparticle Physics, Trieste, Italy.
- **July 2001** Summer School on Non-Accelerator Astroparticle Physics, Trieste, Italy.
- **March 1997** Spring School for Advanced Astrophysicists, Shiraz, Iran.

SEMINARS and CONFERENCES

- **August 2009** International Cosmic Ray Conference (**ICRC**), Lodz, Poland, (3 papers 1:*Study of EAS inclination due to geomagnetic field by 50 TeV to 5 PeV CORSIKA simulated events* 2:*Search for Gamma-Ray events in ALBORZ observatory data* 3:*Another approach for finding core location of extensive air showers*).
- **July 2007** International Cosmic Ray Conference (**ICRC**), Merida, Mexico, (3 papers 1:*Investigation of atmosphere thickness on EAS events by an array of particle detectors and CORSIKA simulations* 2:*Investigation of Geomagnetic field effect on azimuth distribution of EAS events* 3:*Development of an array of Water Cherenkov Detectors for extensive air shower experiment*).
- **August 2005** International Cosmic Ray Conference (**ICRC**), Pune, India, (Presentation : *Investigation of EGRET Gamma-Ray Sources by an Extensive Air Shower Experiment*).
- **Feb.2005** Conference of Iranian Astronomers, Zanjan, Iran, (Presentation : *Investigation of Gamma rays and cosmic rays via Extensive Air Showers*).
- **August 2004** Summer School on Non-Accelerator Astroparticle Physics, Trieste, Italy, (Poster : *Observation of EGRET Gamma Ray Sources ...*)
- **Feb.2004** Conference of Iranian Astronomers, Mashad, Iran, (Presentation : *Investigation of Unidentified EGRET Sources*).
- **Sep.2003** Conference of Iranian Physicists, Tabriz, Iran, (Poster : *A Study on the Observation of Gamma-Ray Sources by Extensive Air Shower Experiments*).

- **Sep.2003** Conference of Iranian Physicists, Tabriz, Iran ,(Presentation : *An Investigation on Anisotropy of Cosmic Rays with a Small Array*).
- **August 2001** International Cosmic Ray Conference (**ICRC**), Hamburg, Germany, (Poster : *Extensive Air Shower Studies with Small Arrays*).
- **August 2001** Summer School on Non-Accelerator Astroparticle Physics, Trieste, Italy, (Poster : *A study on the Extensive Air Showers with a Small Array*)
- **Jan.2001** Conference of Iranian Astronomers, Zanjan, Iran (Presentation : *Investigation of the Effect of the Geomagnetic Field on Extensive Air Showers*).
- **Sep.2000** Conference of Iranian Physicists, Shahrud, Iran (Presentation : *Construction Report of a Hodoscope as a Cosmic Ray Tracking Detector*).
- **Jan.2000** Conference of Iranian Astronomers, Zanjan, Iran (Presentation : *Investigation of 'Box' Models of Shock Acceleration and Synchrotron Radiation of Electrons*).

SKILLS

- Observational Astronomy with Naked Eye.
- Familiar with NIM Electronic Modules.
- Familiar with DOS, Windows and Linux Operation Systems.
- Familiar with Pascal, Qbasic and Fortran Programming languages.
- Familiar with CORSIKA code for the simulation of EAS events and its analysis.
- Workshop Skills : Modelling, Carpentry and Workshop Hand Skills.
- Sports : Mountain Climbing (Jury of Department Group), Swimming (Drowned Saver), Ping Pong (2nd Rank in High School) and Chess (2nd Rank in High School).

SCIENTIFIC EMPLOYMENT, ACADEMIC RESPONSIBILITY AND WORK EXPERIENCES

- Cosmic Ray and particle Physics (AUT)(Sep.2010 January 2011),
- Elementary Astronomy and Astrophysics (AUT)(Feb.2009 June 2009),
- Stellar evolution (AUT)(Feb.2010 June 2010),
- Astrophysics (AUT)(Sep.2009 January 2010),
- Thermodynamics (AUT)(Sep.2009 January 2010),

- Radiation Protection in Fusion (AUT)(Feb.2009 June 2009),
- Physics III (AUT)(Feb.2009 June 2009),
- Nuclear Physics (AUT)(Sep.2008 January 2009),
- Electromagnetic Theory II (AUT)(Sep.2008 January 2009),
- Physics I (AUT)(Sep.2008 January 2009),
- Electromagnetic Theory I (AUT)(Feb.2008 June 2008),
- Physics I (ShUT)(Feb.2008 June 2008),
- Physics III (ShUT)(Sep.2007 January 2008),
- Gen Phys. II (GUT) (Feb.2007, June 2007),
- Astronomy and Astrophysics (IASBS), (March 2005, June 2005), Instructor.
- Optics Lab. (ShUT)(2 terms), (Sep.2003, June.2004), Laboratory Assist.
- Gen.Phys.I Lab. (ShUT)(2 terms), (Sep.2002 , June2003), Laboratory Assist.
- Gen.Phys.II Lab. (ShUT)(2 terms), (Sep.2001 , June2002), Laboratory Assist.
- Gen.Phys.II (ShUT)(2 terms), (Sep.2000 , June2001), Laboratory Assist.
- Gen.Phys.I (ShUT)(2 terms), (Sep.1998 , June1999), Laboratory Assist.
- Astronomy & Astrophysics (ShUT)(2 terms), (Sep.1997 , Jan.1998) & (Sep.1998 Jan.1999), Teaching Assist.
- Special Relativity (ShUT), (Feb.1998 , June1998), Teaching Assist.
- Gen.Phys.III (ShUT), (Sep.1995 ,Jan.1996), Teaching Assist.
- Gen.Phys.I Lab. (CATC), (Feb.2001 , June2001), Instructor.
- Gen.Phys.II Lab. (CATC)(2 terms), (Sep.1999 , Sep.2000), Instructor.
- Gen.Phys.II (CATC), (Sep.1998 , June1999), Instructor.
- Gen.Phys.I (CATC), (Sep.1997 , June1998), Instructor.
- Pre.Gen.Phys.I (CATC), (Sep.1997 , Jan.1998), Instructor.
- Astronomy (Summer school for Advanced high school students in ShUT)(unpaid), (June1994 , Sep.1994) ,Instructor.
- New Physics (Summer school for Advanced high school students in ShUT)(unpaid), (June1996 , Sep.1996) ,Instructor.
- Discrete Collaboration with Radio Young Channel of Iran in Fields of New Physics Specially Astronomy and Astrophysics(unpaid), (From 1998 to 2000).

- Discrete Collaboration with PHYSICS Magazine of Our Department.(unpaid), (From 1995 to now).
- Discrete Collaboration with ASTRONOMY Magazine of Iran in Translation and Writing Notes, (From 1993 to now).

(AUT) : Amirkabir University of Technology.

(GUT) : Golpayegan University of Technology.

(IASBS) : Institute for Advanced Studies in Basic Sciences.

(ShUT) : Sharif University of Technology.

(CATC) : Civil Aviation Technology College of I.R. Iran.

*PRESENT EMPLOYMENT AND DUTIES, AND FORESEEN EMPLOYMENT
UPON RETURN TO HOME COUNTRY AFTER THE ACTIVITY*

- Assistant Professor, Amirkabir University of Technology (AUT),
- Research in Cosmic Ray and Gamma Ray Physics in the **ALBORZ Observatory** in Tehran, (Now and Future).

REFERENCES

- J. Samimi (PhD Supervisor)** : Prof. of High Energy Cosmic Ray and Gamma Ray Astrophysics, **Email** : samimi@sharif.ir.
- M. Bahmanabadi (PhD Advisor)** : Assist. Prof. of Experimental Detection and Analysis of Extensive Air Showers, **Email** : bahmanabadi@sharif.ir.
- Y. Sobouti** : Prof. of High Energy Astrophysics, **Email** : sobouti@iasbs.ac.ir.
- M. Korrami** : Prof. of High Energy physics and mathematical physics, **Email** : mamwad@mailaps.org.
- P. Bernardini** : Assoc. Prof. of Cosmic Ray Astrophysics, **Email** : paolo.bernardini@le.infn.it.
- D. Bhattacharya** : Assoc. Prof. of High Energy Astrophysics, **Email** : dipen@tigre.ucr.edu.