

VAHÉ PETROSIAN

CURRICULUM VITAE

Professor of Physics and Applied Physics, Stanford University
Varian room 342, Stanford University, Stanford, CA 94305-4060.
Telephone: 650-723-1435, e-mail: vahep@stanford.edu

Professional Experience

1961 Teaching Asst, Cornell University
1962-67 Research Asst, CRSR, Cornell Univ.
1967 Research Assoc, CRSR, Cornell Univ.
1967-69 Research Fellow, Calif. Inst. Technology
1969 Visiting Scientist, IOTA Cambridge
1969-71 Assistant Professor, Stanford Univ.
1971 Consultant, Kitt Peak Natl Observatory
1972-79 Associate Professor, Stanford Univ.
1980- Professor, Stanford University
1982-83 Arcetri, Florence; NOAO, Tucson, AZ;
Nordita, Copenhagen; Cornell Univ.
1989-90 Observatoire de Meudon, France.
1996 Space Telescope Science Institute
1998 NOAO, Tucson, AZ
2000 Inst. Adv. Studies; Bochum Univ.

Education

Cornell University 1958-62, B.E.E.
Cornell University 1962-63, M.S.
Thesis Advisor Marshall Cohen
Cornell University 1963-67, Ph.D.
Thesis Advisor Edwin Salpeter

Professional Associations

Royal Astronomical Society
International Astronomical Union
American Astronomical Society

Honors and Awards

1958-62 Iranian National Fellowship
1963-64 Industrial Fellowship, Cornell University
1972-74 Alfred P. Sloan Foundation Fellowship
Member Eta Kappa Nu, Tau Beta Pi

Graduate Students

Richard L. Epstein 1973
William M. Adams 1973
Robert Pelzman 1975
Roger A. Dana 1977
Steven H. Langer 1978
John Leach 1984
Philip B. Duffy 1986
James M. McTiernan 1989
Edward T. Lu 1989
Russell J. Hamilton 1990
Greg Kopp 1991
David Caditz 1991
Anton Bergmann 1992
Brian Park 1997
Ted Lee 1997
Walid Azzam 1997
David Saraniti 1997
Julia Pryadko 1998
Nicole Lloyd 2001
Wei Liu 2006
Yanwei Jiang 2008
Michael Dorris 2009
Qingrong Chen 2014
Alice Allafort Current

Postdoctoral Associates

J.J. Brainerd 1987-1989
A. Wandel 1988-1990
D. Hartmann 1990-1991
R. Dung 1992-1993
E. Linder 1992-1993
F. Ryde 2001-2002
S. Liu 2002-2005
L. Stawarz 2007-2008
J. Singal 2009-2013
D. Kocevski 2010-2012
W. Liu 2011-2015
P. Mertsch 2012-2016
F. Effenberger 2015-2017
F. RubioDaCosta 2013-
M. Dainotti 2011-

Honor Thesis Undergraduates

John Dickey 1973
Mark Soldate 1977
Shimpei Yamashita 1996
Alex Maloney 1998
Tim Donaghy 2000
Joel Hartman 2003
Matt McQuinn 2004
Kevin Luli 2005
William East 2008
Shih-Arng Pan 2008
Bibhashan Shakya 2008
Bgungwoo Kang 2012
Ellie Kitanidis 2013
Byron Williams 2017

Current Research Interests

The research interests of Professor Petrosian have been in two broad areas of high-energy astrophysics and cosmology. The former area includes studies of acceleration, transport and radiation of non-thermal particles developed primarily for application to solar flares. More specifically recent work includes stochastic acceleration by plasma waves in turbulence. This work has also found application in variety of other astrophysical sources including Sgr A* source at this galactic center, other accretion disks, Gamma-ray bursts and Clusters of Galaxies. The work in cosmology is focused on evolution of galaxies and quasars (and AGNs in General) and in luminous arcs in clusters of galaxies (of which he is a co-discoverer) and gravitational lensing. Another interest has been in the area of statistical methods relevant to analysis of astronomical data. This work carried out in collaboration with B. Efron of the Statistics Department at Stanford has been concentrated on development of new non-parametric methods for determination of distribution of astronomical sources from truncated data.

Sample Publications

For a complete listing go to url: www.stanford.edu/dept/astro/group.html and click on ADS. Or click on astro-ph for recent papers.

Gamma-Ray Burst (> 50 publications)

1. N. Lloyd and V. Petrosian, 1999, "Distribution of Spectral Characteristics and the Cosmological Evolution of GRBs," ApJ, 511, 550.
2. F. Ryde and V. Petrosian, 2002, "Gamma-Ray Burst Spectra and Light Curves as Signature of a Relativistically Expanding Plasma", ApJ, 578, 290.
3. V. Petrosian, E. Katanidis, and D. Kocevski 2015, "Cosmological Evolution of Long Gamma-Ray Bursts and the Star Formation Rate". ApJ, 806, 44.

Quasar and AGN (>25 publications)

1. V. Petrosian, 1995, "The Evolution of Gamma-Ray Loud Active Galactic Nuclei," ApJ, 452, 156.
2. J. Singal, V. Petrosian et.al, 2009, "Sources of the Radio Background Considered," 2010 MNRAS
3. J. Singal, V. Petrosian et.al, 2013, "The Radio & Optical Luminosity Evolution of Quasars II. The SDSS Sample", ApJ, 764.1, 43.14.
4. J. Singal, V. Petrosian et.al, 2012, "Flux & Photon Spectral Index Distributions of Fermi-LAT Blazars and Contribution to the Extragalactic Gamma-ray Background", ApJ, 2012, 753, 45
5. V. Petrosian and J. Singal, "On the Relation between the AGN Jet and Accretion Disk Emission", 2015 IAU Symposium 313, 333.

Solar Flares (> 100 publications)

1. V. Petrosian, et.al., 2009, "Relative Distributions of Fluences of 3He and 4He in Solar Energetic Particles," ApJ, 701, 1
2. Q. Chen, V. Petrosian, 2013, "Determination of Stochastic Acceleration Model Characteristics in Solar Flares", ApJ, 777, 33C.
3. V. Petrosian, 2016, "Particle Acceleration in Solar Flares and Associated CME Shocks", ApJ, 830, 28.

Statistical Methods (>15 publications)

1. V. Petrosian, 1992, "The Luminosity Function of Flux Limited Samples," in Proc. Conf. Statistical Challenges in Modern Astronomy.
2. B. Efron and V. Petrosian, 1994, "Survival Analysis of the Gamma-Ray Burst Data," JASA, 89, 452.
3. B. Efron, V. Petrosian, 1998, "Nonparametric Methods for Doubly Truncated Data" JASA, 8/98

Others (> 120 publications)

1. R. Lynds and V. Petrosian, 1989, "Luminous Arcs in Clusters of Galaxies," ApJ, 336,1.
2. V. Petrosian 1998 "New & Old Tests of Cosmological Models and Evolution of Galaxies," ApJ, 507, 1
3. V. Petrosian, 2001, "On the Nonthermal Emission and Acceleration of Electrons in Coma and Other Clusters of Galaxies," ApJ, 557, 560.
4. L. Stawarz, V. Petrosian, R. Blandford, 2010, "On the Energy Spectra of GeV/TeV Cosmic Ray Leptons," ApJ, 710, 236.
5. V. Petrosian & Q. Chen, 2014, "Determination of Acceleration Mechanism Characteristics Directly and Non-Parametrically from Observations: Application to Supernova Remnants", Phys Rev D89 103007.
6. V. Petrosian, 2012 "Stochastic Acceleration in Turbulence", Space Science Reviews 173, 535.