

Curriculum Vitae

Valentyna Abramenko

Education

PhD.: 1990 in astrophysics and radioastronomy at Ioffe Institute for Physics and Technology, St. Petersburg, Russia, Thesis: "*Electric currents in the Solar Atmosphere*".

M.A.: 1973 in astrophysics, St. Petersburg State University, M.A. Thesis: "*Radioemission of the Center Our Galaxy*"

Membership in Societies

American Astronomical Society, 2004; American Geophysical Union, 2003; Solar Physics Division, American Astronomical Society, 2002; International Astronomical Union, 1997; Ukrainian Astronomical Association, 1990

Professional Awards

- 2007 – PI, “Distribution and Dynamics of the Solar Magnetic Flux”
NASA Living With a Star Targeted Research and Technology
- 2007 -- PI, “Turbulence in the Solar Photosphere”
NSF Space Weather Program
- 2005 -- Co-I “Understanding of Magnetic complexity in Active Regions”
NASA Living With a Star Targeted Research and Technology

Synergistic Activities

- Participation in the NASA Living With A Star (LWS) Targeted Research and Technology (TR&T) Program., Heliospheric Focus Team, 2005 - 2008. The goal of the Program is to develop a scientific basis needed for the United States to effectively address those aspects of the connected Sun-Earth system that may affect life and society.
- Development of a semi-automated system to predict flaring productivity of active regions on the Sun.
- IDL, FORTRAN data analysis tools to calculate statistical parameters of the solar magnetic fields.
- Referee for *Astrophysical Journal*, *Solar Physics*, *Advances in Space Research*, *Space Weather*.
- Panel and mail-in reviewer for NSF and NASA.

Invited Talks

2007 – “Role and Nature of Intermittency and Self-Organized Criticality in Solar Phenomena” NG34A-01: AGU Fall Meeting, San Francisco, CA, USA

Affiliations and Professional Experience

Research Professor - Big Bear Solar Observatory of New Jersey Institute of Technology (BBSO/NJIT), 2008- till present.

Research interest: Magnetic fields on the Sun: measures of complexity and non-potentiality of magnetic fields, multifractality and intermittency parameters, magnetic power spectra, distribution of magnetic flux, relationship between turbulent/fractal parameters of the magnetic field and flaring activity, small-scale magnetic fields in coronal holes and quiet sun areas.

Collaborators: Fisk, L.A., Pevtsov, A.A., Longcope, D.W., Yurchyshyn, V., Romano, P., Carbone, V., Goode, P. R., Wang, H.

Research Scientist – BBSO/NJIT, 2005 – 2008.

Visiting Scientist – BBSO/NJIT, 2002 – 2005.

Head of the Solar Physics Laboratory - Crimean Astrophysical observatory (CrAO), Ukraine, 2001 - 2003.

Senior Scientist - Solar Physics Laboratory, CrAO, Ukraine, 1985 – 2005.

Research Interests: magnetic fields and electric currents in the solar atmosphere, numerical modeling of the magnetic field. Collaborators: Carbone, V., Yurchyshyn, V., Seehafer, N.

Visiting Scientist – Universita della Calabria, Italy. Topic: self-similarity and fractal structures in solar magnetic fields. Collaborators: Carbone, V., Veltri, P., Consolini, G., Sorriso-Valvo, L. 1997.

Visiting Scientist – Huairou Solar Observing Station of Beijing Astronomical Observatory, China. Topic: analysis of the current helicity of the solar magnetic field. Collaborators: Wang, J.X., Wang, T.J., 1995.

Researcher - Computer Center of CrAO. Research interest: algorithms and codes for solar oscillations study. Collaborators: Rachkovsky, D.N., Severny, A.B. 1975 – 1985.

Publications

Author of 150 scientific publications in the leading referred astrophysical journals that have international circulation. A complete list of publications is available at <http://www.bbso.njit.edu/~avi>

Selected Recent Publications:

- Abramenko, V. I., Yurchyshyn, V. B., Wang, H. “Intermittency in the Photosphere and Corona above an Active Region” 2008, *Astrophys. J.*, 681, 1669.
- Abramenko, V.I. “Multifractal Nature of Solar Phenomena”, in: “Solar Physics Research and Trends”, NOVA Science Publishers. Inc. New York, 2008.
- Abramenko, V.I., Pevtsov, A.A., Romano, P. “Coronal Heating and Photospheric Turbulence Parameters: Observational Aspects”, 2006, *Astrophys. J.*, 646, L81.
- Abramenko, V.I., Fisk, L.A., Yurchyshyn, V.B. ”The Rate of Emergence of Magnetic Dipoles in Coronal Holes”, 2006, *Astrophys. J.*, 641, L65.
- Abramenko, V.I. “Emerging Active Regions: Turbulence in the Photosphere versus Flaring in the Corona”, Proc. Of the NSO Meeting “Solar MHD Theory and Observations: a High Spatial Resolution Perspective”, Sac Peak, Sunspot, NM, USA, 18-22 July 2005.
- Abramenko, V. I. “Relationship between Magnetic Power Spectrum and Flare Productivity in Solar Active Regions”. 2005, *Astrophys. J.*, 629, 1141.
- Abramenko, V. I. “Multifractal Analysis Of Solar Magnetograms”, 2005, *Solar Physics*, 228, 29.

- Abramenko, V.I., Longcope, D.W. “Distribution of the Magnetic Flux in Elements of the Magnetic Field in Active Regions”, 2005, *Astrophys. J.*, 619, 116