

## JOAN FEYNMAN, PhD '58



Hi Josh,

Remember me? Joan Hirshberg?

this is a note to give you information on my life in physics after I left Syracuse in 1958 with a Ph. D. in Solid State!

In the 1950's it was considered that physics was and ought to be a man's profession only. Women who were interested in the hard sciences were the target of a great deal of discrimination and derision. I was fortunate that I applied to the physics department at Syracuse University. Not only was I accepted but I was actually encouraged there, particularly by professors Peter Bergman and John Trischka. Without that encouragement and that of my husband Dick Hirshberg, who was a graduate student in anthropology, I would never had been able to complete the degree. My thesis with Mel Lax was in solid-state theory but I received my degree in 1958 when the first measurements of the particles and fields in interplanetary space were being made. Space physics was a new and exciting field that I thought was fascinating. It involved new physics and fundamental problems that had not been studied carefully before. I lived near the Lamont (Doherty) Geological Observatory of Columbia University and so I applied for a position there. I received four offers and chose to study rapid variations of the Earth's magnetic field because their cause was unknown. I have been happily working on Solar-Terrestrial Relations ever since. My formal vita is below:

Dr. Feynman is a Principal Scientist at the Jet Propulsion Laboratory and a recipient of a NASA Exceptional Scientific Achievement Medal. She was solar wind particles and fields, solar terrestrial relations and magnetospheric physics throughout her career

(**almost 50 years now**). More recently she has expanded her interests to include climate change (**great fun**). She has been particularly interested in transient solar events and solar cycle variations of several different types of phenomena and the space environment. She was the developer of the JPL model of estimating the hazardous space environment for use in spacecraft design. She was trained at Oberlin College and received her doctorate from Syracuse University in theoretical physics. In 1971 she was a National Research Council senior postdoctoral research associate with the Solar Physics branch at Ames Research Center. From 1972 to 1976 she was at the High Altitude Observatory. She joined the Jet Propulsion Laboratory in 1985 after working at Boston College (1979-1985) and the National Science Foundation (1976-1979). She has been an associate editor of *J. Geophys Res. Space Phys.* and twice elected secretary of the Solar and Interplanetary Physics Section of the American Geophysical Union. She has been author and co-author of over 100 publications and has edited three books.

Recent Publications include:

Feynman, J. and Steven B. Gabriel, On space weather consequences and predictions, *J. Geophys. Res.*, **105**, 10,543, 2000.

Feynman, J., A. Ruzmaikin and V. Berdichevsky, The JPL proton fluence model: An update, *Journal of Atmospheric and Solar Terrestrial Physics*, **64**, 1679-1686, 2002.

Feynman, Joan and Alexander Ruzmaikin, A high-speed erupting prominence CME: A Bridge Between Types, *Solar Physics*, 291, 301-313, 2004.

Ruzmaikin, A., G. Li, G. Zank, J. Feynman and I. Jun, The radial dependence of solar energetic particle fluxes, in *Solar Wind 11- SOHO 16, Connecting Sun and Heliosphere*, ESA Pubs., 2005.

Ruzmaikin, A. J. Feynman, X. Jung, D. Noone, A. M. Waple and Y. Yung, The pattern of northern hemisphere surface air temperature during prolonged periods of low solar output, *Geophys. Res. Lett.*, **31**, 1029/2004GL019955, 2004.

Feynman, J. and Alexander Ruzmaikin, Causes of extremely fast CMEs, Solar Activity and its Magnetic Origin, 343-336, *Proceedings IAU symposium #23*, 2006

V. Bothmer and A. A. Hady, eds. *International Astronomical Union*, doi:10.1017/S1743921306002146, 2006

Feynman, J. and Alexander Ruzmaikin., Climate Stability and the Development of Agricultural Societies, *Climatic Change*, 2007.

Looking forward to hearing about your life.

Joan

<mailto:joan.feynman@jpl.nasa.gov>