



## Institute for Space Weather Sciences Colloquium

Thursday, 21<sup>st</sup> of November 2024, 1pm ET

ECE 202 and via Zoom, meeting ID: 917 2169 7568, password: isws

**Lou Lanzerotti**, Distinguished Research Professor, NJIT

### Size of the Solar System

In the mid-1950s, even before there was known to be a solar wind, discussions had begun as to where the local interstellar medium (LISM) surrounding the Earth and the solar system might be found. The scientific debates that ensued in the subsequent more than six decades – until Voyager 1 crossed in 2004 the termination shock between the out-flowing solar wind and the heliosheath – are described in Chapter 8 of our recently published book\* and will be discussed in this ISWS Colloquium. Seven other chapters in the book discuss other significant scientific debates that engaged the research community near the beginning of the space age. Three of the debates covered in the book were in space plasma physics, three in planetary science, one in astrophysics, and one was a debate that ended when it was conclusively proven that the data were instrumental. Among them, the two authors knew many of the protagonists in the debates, and even contributed slightly to two of the debate topics. In addition to the “history” of the debates, the paths to their resolutions illustrate how scientific discovery and understanding is achieved. And how new research can often be stimulated by the resolution of a vigorous – even long-lasting – debate.

The Forward to the book is written by Thomas Zurbuchen, NASA Administrator 2016-2022. The book was recently given the *2024 Book Award* by the Science Section of the International Academy of Astronautics.

\* Cummings, W. D., and Lanzerotti, L. J., **Scientific Debates in Space Science: Discoveries in the Early Space Era**, Springer Praxis Books, 2023.



Dr. Lanzerotti is an elected member of the National Academy of Engineering and the International Academy of Astronautics, and a Fellow of the American Geophysical Union, the American Physical Society, the Institute of Electrical and Electronics Engineers, the American Institute of Aeronautics and Astronautics, and the American Association for the Advancement of Science.

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