2017 Herbert Howe Lecture in Astronomy

Paul Hemenway

*Gaia - The Structure and Dynamics of the Milky Way*
*From the Brightest Billion Stars*

Jan 25, 4–5pm, Olin Hall 105
refreshments at 3:45pm in Olin Rotunda

**Abstract:** Gaia is a European Space Agency mission to measure the positions, motions, and distances of more than one billion stars. The results from the full mission by 2020 will herald a sea-change in our understanding of the structure, dynamics and history of the Milky Way.

The lecture will open with brief reviews of astrometric developments and of our knowledge of the structure and dynamics of the Milky Way prior to the Gaia era. An example of Professor Howe’s use of astrometry will demonstrate the state of the art in 1900.

The Gaia mission was launched in 12/2013 and will scan the sky for at least 5 years. The rms accuracy is expected to be ±20 microarcseconds. The methods and configuration of the mission will be described. Some of the initial results (released 9/2016) will be discussed, including some local structures and dynamics within the nearby regions of space. The talk will conclude with the expectations from the full mission analysis in 2020.

**About the speaker:** Paul Hemenway started his astronomical career measuring star positions at the US Naval Observatory. He received his Ph.D. in Astronomy at the University of Virginia in 1974 measuring the positions of radio sources using Very Long Baseline Interferometry. In 1978 he became a founding member of the Hubble Space Telescope (HST) Astrometry Science Team, and used the HST Fine Guidance Sensors to help determine the coordinate system for the HIPPARCOS Astrometry Satellite. Now retired, he contributes to the Physics and Astronomy Department and the Enrichment Program at DU.