

An Overview of Lidar

Tuesday, October 13, 2026

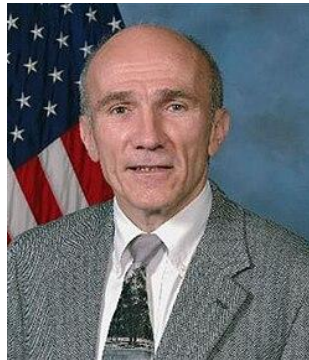
2:00 PM – 3:00 PM

Olin 125

Reception to follow

3:00 PM – 3:30 PM

Olin 204



Dr. Paul McManamon

President of Exciting Technology LLC

ABSTRACT: Dr. McManamon will provide an overview of lidar, including how it works, its main components, and major applications. Lidar is an active optical sensing technology that uses laser light to measure distance by timing the return signal. The presentation will discuss direct-detection and coherent lidar systems, including pulsed, frequency-modulated continuous-wave, and spatial heterodyne approaches. It will also cover key system components such as waveform generators, lasers, beam steering, receivers, and processors. Applications will include autonomous vehicles, driver-assistance systems, 3D mapping, velocity measurement, and lidar sensors used in some consumer devices.

BIOGRAPHY: Dr. Paul F. McManamon is president of Exciting Technology, Technical Director of the Lidar and Optical Communications Institute, LOCI, at the University of Dayton, and Chief Science Officer at NuView, an innovative start-up that will 3D map the world from Low Earth Orbit, LEO. He chaired the US National Academy of Sciences Study “Laser Radar: Progress and Opportunities in Active Electro-Optical Sensing” (2014) and was co-chair of the US NAS study “Optics and Photonics, Essential Technologies for Our Nation” (2012), which recommended a National Photonics Initiative, NPI. Dr. McManamon has written two books on Lidar and is a Fellow of SPIE, IEEE, Optica, AFRL, DEPs, MSS, and AIAA. He was president of SPIE in 2006 and received the WRG Baker award from the IEEE in 1998 for the best paper in any refereed IEEE journal or publication. He worked as a civilian employee of the Air Force at WPAFB from May 1968 to May 2008, and his last job for the Air Force was chief scientist for the AFRL Sensors Directorate. In 2006 he received the Meritorious Presidential Rank Award, and his 2019 Lidar book won the prestigious Goodman book award, awarded jointly by SPIE and Optica.