

# Georges Seurat and Scale-Invariance in Smart Vehicle Concept Development



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Dr. John M. Horack is the Neil Armstrong Chair in Aerospace Policy, and holds a joint appointment between the Department of Mechanical and Aerospace Engineering, in the College of Engineering, and the John Glenn College of Public Affairs.

Before coming to Ohio State in 2016, Dr. Horack served as the Vice President for Space Systems at Teledyne Brown Engineering, as the Vice President for Research at the University of Alabama in Huntsville, and spent nearly two decades as a NASA Civil Servant, performing original theoretical and experimental research in high-energy astrophysics, cosmology, and gamma-ray bursts, as well as serving as a member of the Senior Executive Service, leading the Science and Mission Systems Office at NASA's Marshall Space Flight Center.

He also serves as one of the twelve Vice Presidents of the International Astronautical Federation, and one of only two Americans, responsible for the technical aspects of the Federation, and for the evolution of the annual International Astronautical Congress. He also provides significant consultation services to a number of commercial space start-up companies, to heads of civil space agencies, and to economic development interests tied to spaceflight.

Dr. Horack is the author or co-author of over 100 scientific papers, conference proceedings, and publications across subjects including space policy, atmospheric physics, and high-energy astrophysics. He was an important member of the scientific teams which discovered the existence of flashes of gamma-rays from terrestrial thunderstorms, and the breakthrough scientific discovery that gamma-ray bursts originate from cosmological distances. He is a sought-after public speaker and authority on space-related matters across the commercial, civil, and national security space domains.

Horack holds a Ph.D. and a master's degree in Astrophysics from the University of Alabama in Huntsville, and a bachelor's degree in Physics and Astronomy from Northwestern University. He is an FAA-licensed flight instructor, with commercial and instrument pilot ratings.

## Abstract

The Smart Vehicle Concepts Center, an NSF IUCRC at The Ohio State University, is dedicated to the development of basic and applied research in advanced smart materials or devices for application to vehicle sub-systems and components. Georges Seurat, of course, is one of the most famous among all painters within the French Neo-Impressionist School, which made its mark on the art-scene late in the 19th Century, and subsequently after the painter's death in 1891. This lunch time talk will seek to connect the research at SVC with the techniques and lessons of pointillism, as applied to scale invariance in order to create the most beneficial and positive social, economic, educational, and quality-of-life outcomes from our research.

*Hosted by Professor Marcelo Dapino*

**Thursday, March 1**  
11:45am – 1:00pm  
Lunch Presentation  
E100 Scott Laboratory

