

**THE CATHOLIC UNIVERSITY OF AMERICA  
Washington, DC 20064**

**SEMINAR IN FUNCTIONAL ANALYSIS  
AND RELATED AREAS**

**Wednesday, April 26, 2023**

**5:10 p.m. - 6:50 p.m. (including a coffee break)**

**SPEAKER:** Dr. John E. Gray  
Naval Surface Warfare Center Dahlgren

**TITLE:** Sensor Physics, What Is It and What Are Its Consequences?

This talk consists of three parts: A broadening of the notion of what sensors can be to any source of information that can be used as a data stream. The concepts necessary to make this notion by considering meaningful by discussion of data fusion to make the broadening definition useful, introducing the notion of sensor physics by stretching the application of the mathematics of statistical physics to apply to this problem, and then discussion of an introduction of this application to information from quantum devices, how to achieve *quantum advantage* from devices, and finally introducing the notion of *quantum arbitrage* to explain such advantages across scales of the information fusion.

**The presentations will be given via Zoom. The corresponding link will be sent to everyone in advance.**

**ORGANIZERS:** V. Bogdan (The Catholic University of America), P. Kainen (Georgetown University), R. Kalpathy (The Catholic University of America), and A. Levin (The Catholic University of America).

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**Web page:**

<https://mathematics.catholic.edu/faculty-and-research/mathematics-seminar/index.html>