

## Dr. Avetik R. Harutyunyan



### **Wearable Devices and Flexible Energy Sources for Cooperative Intelligence**

**Tuesday, September 17, 2019**

**3:00 p.m. - Room: 66-360**

**Dr. Avetik R. Harutyunyan** is currently a Chief Scientist and Research Director at Honda Research Institute USA Inc., (San Jose, CA). His areas of research include the studies of nanoscale materials for AI and alternative energy applications perspectives. He is an author of more than 150 scientific publications and more than 100 patents. He is a Fellow of APS and AAAS also Elected Chairman of External Advisory Board of ECS. Harutyunyan received his B.A. degree in “Quantum Physics and Electronics” in 1981 and Ph.D. in “Solid-State Physics and Mathematics” in 1988 studying physics of molecular magnets and superconductors.

#### **Abstract:**

#### **Wearable Devices and Flexible Energy Sources for Cooperative Intelligence**

Recent advances in flexible electronics have boosted the development of smart wearable devices and intelligent systems for healthcare, internet of things, and more as building blocks for cooperative intelligence. Yet, progress in wearable devices is unimaginable without development of light and flexible power sources with high energy density and tolerance to mechanical stresses. A new architecture of intrinsically flexible Li-ion rechargeable battery that is capable of powering a commercial smartwatch with heart rate monitoring and wireless data transferring features will be presented.

Exploitation of low-D materials (carbon nanotubes, graphene) for design and fabrication of highly sensitive sensors (p.p.t. level) for environmental gases and diagnosis of the human physiological state also will be presented.