



JOHNS HOPKINS  
Center for Environmental  
& Applied Fluid Mechanics

## Weekly CEA FM Seminar: Spring 2014

Date: **Friday, May 2, 2014**  
Time: 11:00 AM  
Location: Gilman # 50 (Marjorie M. Fisher Hall)  
Speaker: **Dr. John Kim (UCLA)**  
Title: ***"Control of Wall Turbulence"***

### Abstract

Different flow control strategies aimed at achieving skin-friction drag reduction in turbulent boundary layers have been explored through numerical experiments. Both passive and active controls were considered. For passive control, the effects of superhydrophobic surface on turbulence structures and skin-friction drag were investigated. For active control, optimal surface blowing and suction were sought in an attempt to achieve drag reduction by suppressing near-wall turbulence structures. The underlying mechanism by which skin-friction drag reduction was achieved in both approaches will be discussed.

**BIO:** Dr. Kim is Rockwell Collins Distinguished Professor in Department of Mechanical and Aerospace Engineering at UCLA. He received his Ph.D. in Mechanical Engineering from Stanford University in 1978. Prior to joining UCLA he was with NASA Ames Research Center, where he conducted research in the areas of turbulence and transition physics as a research scientist and Chief of Turbulence and Transition Physics Branch. John Kim's primary research interest is numerical simulation of transitional and turbulent flows, physics and control of turbulent flows, and numerical algorithms for computational science.