



CREW Seminar Series: Fall 2010

Flow Control for Fluid/Thermal Systems. Test case: Vibration Control of Wind Turbine Blades

Abstract

Active flow control holds tremendous promise for expanding the performance of fluid/thermal systems and enabling revolutionary concepts for advanced designs. A novel active flow control technique that involves wind turbine blades' vibration mitigation via embedded miniature synthetic (zero-net-mass-flux) jet actuators will be shown. The effect of this technique will be demonstrated during static and dynamic motions of the blade. It will be shown that, for some pitch angles, flow control can reduce significantly blades vibrations in time-scales that are much shorter than the conventional methods (e.g., pitching of the blade). This mechanical simplicity makes the application of active flow control particularly attractive for the development of large-scale wind turbines, as well as small urban turbines.

By Michael Amitay from Rensselaer Polytechnic Institute

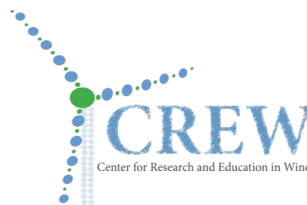
**On Tuesday, August 31, 2010, at 5:00pm
In Room ECCS 1B12**

(CAETE studio, Engineering Center, University of Colorado at Boulder)

Refreshments will be available at 4:45pm



Michael Amitay received his B.Sc. (1987), M.Sc. (1990) and D.Sc. (1994) from the Technion - Israel Institute of Technology in Haifa, Israel. He was a post-doctoral fellow at the University of Arizona (1994-1996) working on active control of heat transfer from heated/cooled surfaces. From 1996-2003 he held several positions at Georgia Tech Research Institute (Aerospace, Transportation, and Advanced Systems Lab) and at Georgia Institute of Technology (School of Mechanical Engineering). He joined RPI in 2003 where he currently holds an Associate Professor position. He is an AIAA Associate Fellow. Prof. Amitay has over 75 journal and conference publications, two book chapters, three conference papers that were awarded "best technical paper" in 2000 by the ASME and in 2001 and 2002 by the AIAA, and two U.S. patents. His main research interests are in the field of active flow control with applications in aerial vehicles and wind turbines.

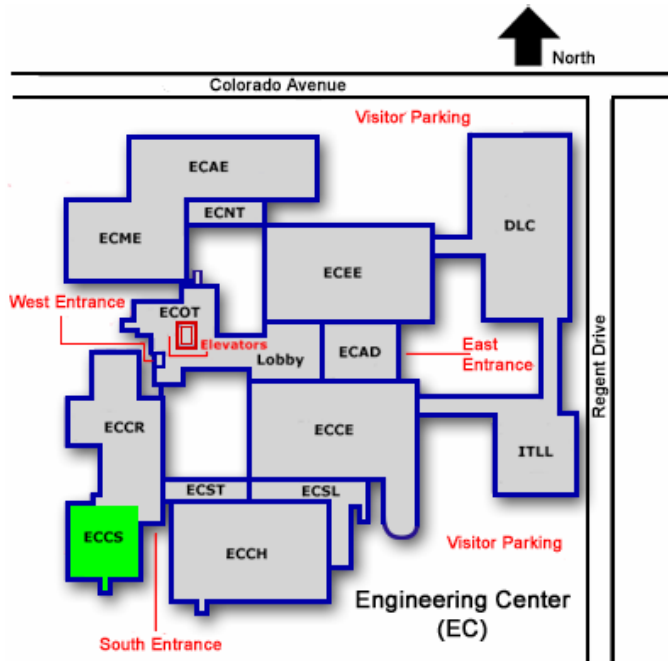


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How to get to the CU-Boulder Engineering Center

From 28th Street (Hwy 36), go west on Colorado Ave., which leads into the University. You will see the Engineering Center on the left, one block further along Colorado Ave.

Parking is available at visitor parking lots and nearby meters.



Room **ECCS 1B28** is located in the 1st basement (courtyard level) of the Computer Science Wind (ECCS).

Broadcasting option

While we highly encourage students, faculty and researchers to come attend the seminar in person, the seminar will also be broadcast at the following URL:

URL: <http://dimdim.cs.colorado.edu>

Meeting code: CREW08312010

Unplanned technical problems are always a possibility, so we apologize in advance. Nonetheless, if technical problems are encountered, please feel free to call Mark Dehus at 303-735-6275.

