McGill

Mechanical Engineering Colloquium

April 6, 2016

Macdonald Engineering Building (MD) 267 from 11:00am-12:00pm

Dr. Daniele Mortari

Professor of Aerospace Engineering at Texas A&M University

Flower Constellations and k-vector Applications

Abstract:

This talk cover two distinct topics/parts.

In the first part the Flower Constellations theory evolution is summarized. The initial motivation, the original theory, the 2-D and 3-D Lattice versions, and the Necklace problem will be presented. Various examples and animations for potential current and futuristic applications will be shown.

In the second part, the *k*-vector range searching technique is summarized with particular emphasis in the most recent applications. Inverting nonlinear functions, probability-based range searching in *n*-dimensions, iso-surface identification, intensive random sampling generation, and gene sequence identification, will be shown.

Biography:

Daniele Mortari is Professor of Aerospace Engineering at Texas A&M University, working on the field of attitude and position estimation, satellite constellation design, and sensor data processing. In addition, he has taught at the School of Aerospace Engineering of Rome's University, and at Electronic Engineering of Perugia's University. He received his dottore degree in Nuclear Engineering from University of Rome "La Sapienza," in 1981. He is IEEE and AAS Fellow, AIAA Associate Fellow, Honorary Member of IEEE-AESS Space System Technical Panel, and former IEEE Distinguish Speaker. He has published more than 275 papers and has been widely recognized for his work, including receiving best paper Award from AAS/AIAA, two NASA's Group Achievement Awards, 2003 Spacecraft Technology Center Award, 2007 IEEE Judith A. Resnik Award, and 2016 AAS Dirk Brouwer Award.