Invited Guest Seminar

Professor Qiqi Wang

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Design in Chaos – Towards design optimization using high fidelity, multi-disciplinary simulations

What role will high fidelity and multi-disciplinary simulations play in aerospace engineering? Will they be used in design optimization? If so, how will they be used in design optimization? What are the challenges of using them in design optimization? This talk attempts to answer these questions for high fidelity simulations of unsteady flows and coupled aero-structure simulations. A common challenge in these simulations is that they can exhibit chaotic dynamics. Chaotic dynamics makes it difficult to generate smooth response surfaces, and challenges gradient-based design optimization. This talk will present the Least Squares Shadowing method, which overcomes the challenge of chaotic dynamics, produces smooth response surface and useful gradient information. We will discuss the potential of this method in design optimization of unsteady, high fidelity and multi-disciplinary simulations.

Thursday, March 27, 2014
1:00 – 2:00 PM
Onizuka Conference Room (ECAE 199)