

Docente	Lineas de Investigacion	Current Projects
Dr Ou Ma	<ul style="list-style-type: none"> Dynamics, control, and robotics for aerospace and biomechanics applications 	<ul style="list-style-type: none"> Development of an Adaptive Reduced-Gravity Simulator for Aerospace and Biomechanics Research
	<ul style="list-style-type: none"> Contact and impact dynamics (modeling, simulation, and experimental validation) 	<ul style="list-style-type: none"> Satellite rendezvous and docking, satellite on-orbit servicing
	<ul style="list-style-type: none"> Space systems verification and validation 	<ul style="list-style-type: none"> Model reduction for impact-contact dynamics of flexible multibody systems
		<ul style="list-style-type: none"> Modeling and simulation of human-body dynamics System identification for robotics and UAV applications Space robotics control for capturing a tumbling object in orbit
Dr Fang Jun Shu	<ul style="list-style-type: none"> Experimental fluid dynamics, bio-inspired flow, biofluidics, microfluidics, turbulent flow, optical metrology and development of flow diagnostic methods. 	<ul style="list-style-type: none"> National Science Foundation: Unsteady flow phenomena in models of curved arteries with stents. Present project, lead investigator. My responsibility including: flow system design and fabrication, design and conduct of experiments, results analysis and writing of annual report.
		<ul style="list-style-type: none"> National Institute of Health: Develop of a turbodynamic pediatric ventricular assist device. 2006~2009, \$5M, key investigator. My responsibility include: design of the flow visualization prototype, design and conduct of flow experiments, results analysis and writing of annual and final report.
		<ul style="list-style-type: none"> National Institute of Health: Develop of a ventricular assist device for toddlers. 2006~2009, ~\$500k, lead investigator. My responsibility include: prototype design and fabrication, in vitro test, flow visualization, coordinate in animal implant and preparation of final report and participated in the phase II proposal writing.

		<ul style="list-style-type: none"> - WorldHeart corporation: Investigation of pulsatile flow within the Levacor ventricular assist device. 2007~2008, ~\$30k, principle investigator. I was in charge of proposal writing, experimental system design and assembly, conduct of experiments, results analysis, and writing of final report.
Dr Ming Jun Wei	<ul style="list-style-type: none"> • Fluid Mechanics 	<ul style="list-style-type: none"> - Physics-Based Morphology Analysis and Adjoint Optimization of Flexible Flapping Wings, AFOSR, 2012 ~ 2015
	<ul style="list-style-type: none"> ✓ Computational Fluid Dynamics 	<ul style="list-style-type: none"> - HPC-Enabled Parametric Studies of Under Body Blasts: From High-Fidelity to Reduced-Order Models, Army High Performance Computing Research Center (AHPCRC), ARL, 2012 ~ 2017
	<ul style="list-style-type: none"> ✓ Aeroacoustics 	<ul style="list-style-type: none"> - Flapping and Twisting Aeroelastic Wings for Propulsion, Army High Performance Computing Research Center (AHPCRC), ARL, 2007 ~ 2012
	<ul style="list-style-type: none"> ✓ Fluid Structure Interaction 	<ul style="list-style-type: none"> - Reduced-Order Modeling of Shear Layers, SURP, Sandia National Laboratories, 2007 ~ 2009
	<ul style="list-style-type: none"> ✓ Flow Control ✓ Biomechanics 	
dr sanyal	<ul style="list-style-type: none"> • Dynamics & Vibrations, Robotics & Controls 	<ul style="list-style-type: none"> - Robust State and Uncertainty Estimation for Unmanned Systems in the Presence of External Uncertainties, NSF, \$278,158, Sep. 1, 2011 - Aug. 30, 2014, PI (co-PI Eric Butcher).
	<ul style="list-style-type: none"> • Nonlinear control and dynamics, geometric mechanics, nonlinear estimation, aerospace control, mobile robots 	<ul style="list-style-type: none"> - Proximity Operations for Near Earth Asteroid Exploration, NASA, \$749,980, Sep. 1, 2011 - Aug. 30, 2014, co-PI.
Dr. Young Ho Park	<ul style="list-style-type: none"> • Solid Mechanics & Materials 	-

	✓ Atomistic modeling of nanosystems and material development for engineering applications.	- Statistical Analysis and Ergonomic Study of Glovebox Glove Dexterity, Los Alamos National Laboratory, (Co-investigator: Dr. Edward Pines)
	✓ Research interests also include computational mechanics, stochastic modeling, reliability analysis, and design optimization.	
dr harry c. hardee	• Thermal Science & Energy	- Thermo-Chemical Behavior of Aluminum Powder - Thermo-Electrically Driven Seawater Pumping Device