

# 2021 Dynamical Systems and Control Theory Program Review

Dr. Fred Leve | September 20-22, 2021 | Shalimar, FL / "Hybrid"


## Agenda Day 1 | September 20, 2021 (All agenda times CDT)

Time	Topic	Speaker
7:45-8:00	Set up	
8:00-8:10	INTRODUCTIONS	Frederick Leve, AFOSR
8:10-8:35	<a href="#">Fluid Flow on Geometric Rough Paths</a>	James Michael Leahy, Imperial College London
8:35-9:00	<a href="#">Multi-agent Cooperation in Adversarial Scenarios</a>	Eloy Garcia, AFRL/RQ
9:00-9:25	<a href="#">Multi-Player Pursuit-Evasion Differential Games</a>	Meir Pachter, AFIT
9:25-9:50	<a href="#">Solvable Linear-Quadratic Control and Generalizations for Systems with non-Gaussian Noise</a>	Tyrone Duncan & Bozena Pasik-Duncan, KU
9:50-10:00	Coffee Break (Lobby ONLY)	
10:00-10:25	<a href="#">Graphon Mean Field Game Theory: Recent Progress</a>	Peter Caines, McGill
10:25-10:50	<a href="#">Characterizing Long-term Behavior of Population Games: New Methods and Applications</a>	Nuno Martins, UMD
10:50-11:15	<a href="#">Prescribed-Time Control and Safety</a>	Miroslav Krstic, UCSD
11:15-11:40	<a href="#">Attacks on Learning in Multi-agent Systems</a>	Vijay Gupta, Notre Dame
11:40-1:10	Lunch (Outside the REEF)	
1:10-1:35	<a href="#">Recent Progress on Numerical Methods in Stochastic Systems: Adaptive Optimization, Inverse Reinforcement Learning, and Controls under Partial Observations</a>	George Yin and Le Yi Wang, Wayne State and Uconn
1:35-2:00	<a href="#">V&amp;V and Model Calibration of Data-scarce Noisy Chaotic Systems</a>	Daniel Eckhardt, AFRL/RQ
2:00-2:25	<a href="#">Boundary Control of the Wave Equation via Linear Quadratic Regulation</a>	Art Krener, UC Davis
2:25-2:50	<a href="#">Exponential Turnpike Property of Fractional Control Problems</a>	Mahamadi Warma, GMU
2:50-3:00	Coffee Break (Lobby ONLY)	
3:00-3:25	<a href="#">On Distributed Observers</a>	Steve Morse, Yale

3:25-3:50	<a href="#">Data-driven Estimation of Forward Reachable Sets</a>	Murat Arcak, UC Berkeley
3:50-4:15	<a href="#">Conversion of Second-Order HJ PDEs into First-Order HJ PDEs</a>	Bill McEneaney, UCSD
4:15-4:40	<a href="#">Mechanism Design for Multiagent Coordination</a>	Jason Marden, UCSB
4:40	<b>MEETING ADJOURN FOR THE DAY</b>	

		
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<b>Agenda Day 2   September 21, 2021 (All agenda times CDT)</b>		
Time	Topic	Speaker
7:45-8:00	<b>Set-up</b>	
8:00-8:05	Morning Welcome and Discussions	Frederick Leve, AFOSR
8:05-8:30	<a href="#">A Systems Theory Approach to the Synthesis of Minimum Noise Non-Reciprocal Phase-Insensitive Quantum Amplifiers</a>	Ian Peterson, ANU
8:30-8:55	<a href="#">Viability and Invariance in Wasserstein Space <math>P_2(\mathbb{R}^d)</math></a>	Helene Frankowska, CNRS U Paris
8:55-9:20	<a href="#">Autonomous Guidance and Targeting by Semi-algebraic Methods</a>	Emmanuel Trelat, U Sorbonne
9:20-9:45	<a href="#">Dissipativity Theory for Discrete-Time Nonlinear Stochastic Dynamical Systems</a>	Wassim Haddad, GaTech
9:45-9:55	<b>Coffee Break (Lobby ONLY)</b>	
9:55-10:20	<a href="#">Safe Reinforcement Learning Benchmark Environments for Aerospace Control Systems</a>	Kerianne Hobbs, AFRL/ACT3
10:20-10:45	<a href="#">Interplay of Curvature and Control Towards 2D3D Vision</a>	Romeil Sandhu, Stoneybrook U
10:45-11:10	<a href="#">Topological Entropy of Switched Nonlinear Systems</a>	Sayan Mitra and Daniel Liberzon, UIUC
11:10-11:35	<a href="#">Spectral Uncertainty Propagation for Stochastic Hybrid System on a Lie Group</a>	Taeyoung Lee and Melvin Leok, GWU and UCSD
11:35-1:05	<b>Lunch (Outside the REEF)</b>	

1:05-1:30	<a href="#">Developments in Shrinking Horizon Model Predictive Control</a>	Ilya Kolmanvsky, U Mich
1:30-1:55	<a href="#">Occupation Kernels and Liouville Operators for Spectral Decomposition of Systems with Control</a>	Rushi Kamalapurkar and Joel Rosenfeld, U Oklahoma and USF
1:55-2:20	<a href="#">Hilbert Space Concepts for Nonlocal and Nonlinear Dynamical Systems</a>	Joel Rosenfeld, USF
2:20-2:45	<a href="#">Toward Interactive Control</a>	David Spivak, MIT
2:45-2:55	<b>Coffee Break (Lobby ONLY)</b>	
2:55-3:20	<a href="#">Direct Adaptive Control of Nonlinear Systems with Uncertain Unstable Zero Dynamics</a>	Dennis Bernstein and Jessie Hoagge, U Mich and U Kentucky
3:20-3:45	<a href="#">Learning-based Planning and Control for Persistent Safety of UASs</a>	Naira Hovakimyan, UIUC
3:45-4:10	<a href="#">Synthesis and Analysis of Multi-Agent Systems under Spatial and Temporal Specifications</a>	Dimitra Panagou, U Mich
4:10-4:35	<a href="#">Estimating High Probability Reachable Sets with Mixed Monotone Systems Theory</a>	Sam Coogan, GaTech9
4:35	<b>MEETING ADJOURN FOR THE DAY</b>	

		
<b>2021 Dynamical Systems and Control Theory Program Review</b> Dr. Fred Leve   September 20-22, 2021   Shalimar, FL / "Hybrid"		
<b>Agenda Day 3   September 22, 2021</b>		
<b>Time</b>	<b>Topic</b>	<b>Speaker</b>
7:45-8:00	<b>Set-up</b>	
8:00-8:05	Morning Welcome and Discussions	Frederick Leve, AFOSR
8:05-8:30	<a href="#">Quantifying Nonequilibrium Dynamics of Stochastic Systems with Partial Information</a>	Gili Bisker, Tel Aviv University
8:30-8:55	<a href="#">Verified Optimization</a>	Jeremy Avigad and Alexander Bentkamp, CMU
8:55-9:20	<a href="#">Gaussian Belief Space Path Planning for Minimum Sensing Navigation</a>	Tanaka Takashi, UT Austin
9:20-9:45	<a href="#">Data Driven Systems and Control Framework for Multiway Dynamical Systems</a>	Indika Rajapakse, et al U Mich and UTRC

9:45-9:55	<b>Coffee Break (Lobby ONLY)</b>	
9:55-10:20	<a href="#">Design of Robust and Accurate Biosensing Systems</a>	Domitilla Del Vecchio, MIT
10:20-10:45	<a href="#">Linearization via Lifting of General Time-Varying Nonlinear Systems and Its Applications</a>	Nader Motee, Lehigh U
10:45-11:10	<a href="#">Duality of Ensemble Control Systems</a>	Jrshin Li, Wash U
11:10-11:35	<a href="#">Sparse Linear Ensemble Systems and Structural Controllability</a>	Xudong Chen, CU Boulder
11:35-1:05	<b>Lunch (Outside the REEF)</b>	
1:05-1:30	<a href="#">Analysis of Spurious Trajectories for Time-varying Optimization via Nonlinear Control Theory</a>	Javad Lavaei, UC Berkeley
1:30-1:55	<a href="#">Performance and Safety Guarantees for Adaptive Online Optimal Control</a>	Na Li, Harvard
1:55-2:20	<a href="#">Model-based Data-driven Learning Methods for Optimal Feedback Control</a>	Qi Gong, UCSC
2:20-2:45	<a href="#">On Gradient Flows Initialized near Maxima</a>	Mohamed Belabbas, UIUC
2:45-2:55	<b>Coffee Break (Lobby ONLY)</b>	
2:55-3:20	<a href="#">Hybrid Control for Robust and Global Tracking on Smooth Manifolds</a>	Ricardo Sanfelice, UCSC
3:20-3:45	<a href="#">Stochastic Hybrid Decision-making Networks for Global almost Sure Unanimity</a>	Andy Teel, UCSB
3:45-4:10	<a href="#">Convexification of Motion Planning through Liftings and Hypercomplex Numbers</a>	Behcet Acikmese and Mehran Mesbahi, University of Washington
4:10-4:35	<a href="#">On Geometric Optimal Transport Theory</a>	Allen Tannenbaum, Stonybrook U
4:35-4:40	Closing Remarks	Frederick Leve, AFOSR
4:40	<b>MEETING ADJOURN</b>	