

MIT IAP Advanced Propulsion & Energy IV
Tuesday – Saturday
January 18 – 22, 2022

Tuesday 1/18/22

Action			
10:00 – 10:45 Eastern	Intro	Charles Chase	UnLAB
10:45 - 11:00	Discussion		
11:00 - 11:30	National Service Program	Kate McKinnon	UnLAB
11:30 – 11:45	Discussion		
11:45 – 12:30	Disruptive Technology Development	David Lewis	DARPA
12:30 – 12:45	Discussion		
12:45 – 1:30	Octopus Brain Coherence / Atmosphere of Sound	Victoria Vesna	UCLA
1:30 – 1:45	Discussion		
1:45 – 3:00	Lunch		
3:00 – 3:45	Emergent Emergency	Jim Gimzewski	UCLA
3:45 – 4:00	Discussion		
4:00 – 4:45	Protein Sound	Markus Buehler	MIT
4:45 – 5:00	Discussion		

Wednesday 1/19/22

Light		Intro to Day Charles & Kate	
10:00 - 10:45	Fock Laser	Nick Rivera	MIT
10:45 - 11:00	Discussion		
11:00 - 12:00	Wave Interactions with Hard and Soft Resonant Structures	Mike Fiddy	UNC Charlotte
12:00 - 12:15	Discussion		
12:15 - 1:15	Non-reciprocal thermal radiation and its implication for energy harvesting	Shanhui Fan	Stanford
1:15 - 1:30	Discussion		
1:30 - 2:30	Lunch		
2:30 - 3:15	Effective mass of a photon and achieving cosmic scale accelerations in a lab	Igor Smolyaninov	UMD
3:15 - 3:30	Discussion		
3:30 - 4:30	A surprisingly promising new approach to fundamental physics	Stephen Wolfram	Wolfram Research
4:30 - 5:00	Discussion		

<https://us02web.zoom.us/j/86717769187>

<https://us02web.zoom.us/j/85151598830>

Thursday 1/20/22

"Vacuum" Fluctuations & Oscillations		Intro to day Kate & Charles	
10:00 - 10:45	Fluctuation Forces	Charles Chase	UnLAB
10:45 - 11:00	Discussion		
11:00 - 12:00	de Broglie Waves / Classically based quantum behavior	Yuval Dagan	Technion
12:00 - 12:15	Discussion		
12:15 - 12:45	Fluctuation-Dissipation Based Energy and Forces	Yoichiro Tsurimaki	Stanford
12:45 - 1:00	Discussion		
1:00 - 2:00	Lunch		
2:00 - 3:00	Quantum Field Fluctuations: Probability Distributions and Physical Effects	Lawrence Ford	Tufts
3:00 - 3:15	Discussion		
3:15 - 4:00	Hydrodynamic Quantum Field Theory	John Bush	MIT
4:00 - 4:15	Discussion		
4:15 - 5:00	Dynamic Vacuum Model	Sonny White	Limitless Space Institute

<https://us02web.zoom.us/j/83468452498>

Friday 1/21/22

Gravitational Forces and Transduction		Intro to day Kate & Charles	
10:00 - 10:45	Experimental Gravity & The Search for Anomalous Forces	George Hathaway	Hathaway Research International
10:45 - 11:00	Discussion		
11:00 - 12:00	Testing and Development of Revolutionary Propulsion Concepts	Martin Tajmar	Technische Universität Dresden
12:00 - 12:15	Discussion		
12:15 - 1:30	Lunch		
1:30 - 2:15	The nature of Kaluza scalar charge	Lance Williams	Konfluence Research Institute
2:15 - 2:30	Discussion		
2:30 - 3:15	Superconductor Meissner effects for gravito-electromagnetic fields	Nathan Inan	Fresno State
3:15 - 3:30	Discussion		
3:30 - 4:30	Transduction of EM and GR waves via SC charged rings, and a Hertz-like experiment	Ray Chiao	UC Merced
4:30 - 5:00	Discussion		

<https://us02web.zoom.us/j/87604599325>

Saturday 1/22/22

Society for Scientific Exploration Advanced Energy Concepts Challenging the Second Law of Thermodynamics			
10:00	Beyond the thermodynamic limit: A template for second law challenges	Daniel Sheehan	UC San Diego
11:00	Charging capacitors using graphene fluctuations	Paul Thibado	University of Arkansas
12:00	Theoretical analysis of thermionic emission as a way to harvest heat energy at a uniform temperature	Germano D'Abramo	Ministero dell'Istruzione
12:50 - 2:00	Lunch Break		
2:00	Energy renewal: isothermal utilization of environmental heat energy with asymmetric functions	James Weifu Lee	Old Dominion University
3:00	Fundamental issues in energy harvesting	George Hathaway	Hathaway Research International
4:00	Extracting zero-point energy: does it violate the second law?	Garret Moddel	University of Colorado - Boulder
5:00 - 6:00	Panel Discussion: Evidence for violation of the 2nd law		

<https://us02web.zoom.us/j/84314009933>