PQE Follow-on and Quantum Biology Workshop

IQSE Seminar Room, MPHY 578, Texas A&M University, College Station, TX

Parking: North Side Garage, paid parking

Zoom access:https://tamu.zoom.us/j/98156251523?pwd=QVdSdGxtL1UyY0g1L083SU5QR0QrUT09
Meeting ID: 981 5625 1523 Passcode: 297578

Tuesday, January 13th, 2026

Quantum Fluids and BEC, Chair: Anatoly A. Svidzinsky		
Time	**Speaker**	**Title**
8:30 – 8:55	Breakfast	
8:55 – 9:00	Marlan Scully	Welcome
9:00 – 9:30	Marlan Scully	Quantum Eraser: Yesterday and Tomorrow
9:30 – 10:00	Aleksei M. Zheltikov, *TAMU*	The Quantum-field Fabric of Optical Solitons
10:00 – 10:30	Victor Weisskopf Award Presentation	Dr. Katepalli R. Sreenivasan, *NYU*, via Zoom
10:30 – 11:00	Coffee Break	Poster Session
11:00 – 11:30	Vitaly Kocharovsky, *TAMU*	Hafnian master theorem and quantum supremacy
11:30 – 12:00	Peter Burker, *UC Irvine*	Tutorial on Mitochondria in quantum sensing

12:00 – 13:00	Lunch Break	Posters and Networking

Quantum Thermodynamics and Quantum Information, Chair: Aleksei M. Zheltikov		
Time	**Speaker**	**Title**
13:00 – 13:30	Alexey Belyanin, *TAMU*	Nanophotonics for coherent control of topological electron states
13:30 – 14:00	Anatoly Svidzinsky, *TAMU*	Quantum evolution of mixed states, vacuum entanglement and performance of quantum heat engines
14:00 – 14:30	Hui Wang, *TAMU*	Quantum Heat Engines Driven by Multilevel Quantum Coherence
14:30 – 15:00	Barnabas Kim, *TAMU*	Heat Engine in Quantum Engineering: Coherence and Entanglement as resource
15:00 – 15:30	Coffee Break	Poster Session
15:30 – 16:00	Patricia Ning, *TAMU*	Robust Iterative Learning Hidden Quantum Markov Models
16:00 – 16:30	Yusef Maleki, *TAMU*	Quantum Heat Engine as a Sensor and Beyond: Insights from Fisher Information
16:30 – 17:00	Cooper Watson, *TAMU*	Unified Microscopic Foundations of the Quantum Boltzmann Equation

18:00 Workshop dinner in honor of the Victor Weisskopf Award recipients at C&J Barbeque, 2112 W Briargate Dr, Bryan, TX 77803

Wednesday, January 14th, 2026

The Dawn of Quantum Biology, Chair: Alexei V. Sokolov		
Time	**Speaker**	**Title**
8:30 – 8:55	Breakfast	
8:55 – 9:00	Michael F. Criscitiello & Garry Adams, *TAMU*	Opening Remarks
9:00 – 9:45	J. Gary Eden, *UIUC and TAMU* & Sung-Jin Park, *UIUC*	Interactions of Deep-UV Photons With Microorganisms: Defeating the Air Transmission of Respiratory Disease Pathogens and Improving Food Preservation and Safety
9:45 – 10:15	James Cai, *TAMU*	Quantum single-cell systems biology
10:15 – 10:45	Vanderlei Bagnato, *TAMU*	Photo-Oxidation as a Tool for Altering Cellular Dynamics: Insights into Cancer Cells and Microorganisms
10:45 – 11:00	Coffee Break	Poster Session
11:00 – 11:30	Frances Ligler, *TAMU*	The road to an optical biosensor based on quantum photonics
11:30 – 12:00	Girish Agarwal, *TAMU*	Squeezed Light Enabled Imaging and Sensing-Theory and Experiments

12:00 – 13:00	Lunch Break	Posters and Networking

Quantum Sensing and Devices I, Chair: James Cai		
Time	**Speaker**	**Title**
13:00 – 13:20	Vladislav Yakovlev, *TAMU*	From Curiosity to Capability: A Pragmatic View of Quantum Biology and Imaging
13:20 – 13:40	Philip Hemmer, *TAMU*	Nanodiamonds and Quantum Sensing
13:40 – 14:00	Steven F. DiMarco, *TAMU*	Quantum Ocean: Resetting Ocean Science with Applications of Quantum Sensors, Materials, Networks
14:00 – 14:20	Aart Verhoef, *TAMU*	Super-resolved multiphoton microscopy with double enhancement achieves sub-100 nm resolution
14:20 – 14:40	Alma Fernandez, *TAMU*	Optical Coherence Microscopy: Applications to Agriculture
14:40 – 15:00	Oumeng Zhang, *TAMU*	Quantum-bound-guided single-molecule orientation localization microscopy
15:00 – 15:20	Coffee Break	Poster Session
Quantum Sensing and Devices II, Chair: Zhenhuan Yi		
15:20 – 15:40	Alexei V. Sokolov, *TAMU*	Quantum Molecular Coherence: Applications in Biophotonics
15:40 – 16:00	Gordon Chen, *TAMU*	Normal Modes of Motion of Viruses
16:00 – 16:20	Narangerel Altengerel, *TAMU*	Quantum Molecular Vibrations in Biology: Directly Measuring Aromatic π–π Interactions in Proteins
16:20 – 16:40	Selim Romero, *TAMU*	Beyond Correlation: Entanglement-Based Generative Modeling of Non-Linear Biological Systems
16:40 – 17:00	Zhenhuan Yi, *TAMU*	Quantum Light Sources for Bio- Imaging and Sensing