Agenda / Science & Roger Penrose

Day 1 – Tuesday - August 3, 2021 9:00 am – 12:30 pm PST/AZ

Overview

Session Chair	**Stuart Hameroff,** University of Arizona
9:00 am – 10:30 am	**Sir Roger Penrose,** Nobel Laureate Oxford University *Consciousness, Quantum State Reduction, Black holes, and Cyclic Cosmology— Connecting Threads*

Black Holes

Session Chair	**Roger Penrose,** Oxford University
10:30 am – 11:15 am	**Reinhard Genzel,** Nobel Laureate Max Planck Institute/UC Berkeley *A 40-Year Journey*
11:15 am – 12:00 noon	**Roger Blandford** KIPAC/Stanford University *Black Holes - Nature or Nurture?:* *The Roles of Rotation and Accretion in Powering Cosmic Sources*
12:00 noon – 12:30 pm	**Discussion**

Day 2 – Wednesday - August 4, 2021 9:00 am – 12:30 pm PST/AZ

Quantum Measurement – Objective Reduction (OR)

Session Chair	**Roger Blandford,** KIPAC, Stanford University
9:00 am – 9:45 am	**Ivette Fuentes-Guridi** University of Southhampton *Exploring the unification of quantum theory and general relativity with a Bose-Einstein condensate"*
9:45 am – 10:30 am	**Hendrik Ulbricht** University of Southhampton *Probing new physics by levitated mechanical systems*
10:30 am – 11:15 am	**Dirk Bouwmeester** UC Santa Barbara/Leiden University, NL *An experimental investigation of the reduction of the quantum wavefunction*
11:15 am – 12:00 noon	**Philip Stamp** University of British Columbia *The correlated worldline (CWL) theory of quantum gravity*
12:00 noon – 12:30 pm	**Discussion**

Day 3 – Thursday - August 5, 2021 9:00 am – 12:30 pm PST/AZ

Consciousness – Orch OR

Session Chair:	**Justin Riddle,** University of North Carolina
9:00 am – 9:45 am	**Stuart Hameroff** University of Arizona *The Orch OR theory of consciousness*
9:45 am – 10:30 am	**Greg Scholes** Princeton University *Biological quantum phenomena and the brain*
10:30 am – 11:15 am	**Alysson Muotri** UC San Diego *Complex neural networks spontaneously emerge from human brain organoids*

Panel – Quantum Biology of Microtubules
11:15 am – 12:45 pm

Chair, Panel & Discussion	**Jack Tuszyński,** University of Alberta
11:15 am - 11:25 am	**Opening Remarks**
11:25 am -11:35 am	**Aarat Kalra,** Princeton University *Light at the end of the tunnel: Optical signaling through microtubules*
11:35 am – 11:45 am	**Travis Craddock,** Nova Southeastern University *Fano resonances in the resonance Raman spectra of tubulin and microtubules reveals active quantum effects*
11:45 am – 11:55 am	**Aristide Dogariu,** University of Central Florida Experimental and computational insights into the remarkable electromagnetic properties of microtubules
11:55 am – 12:05 pm	**M. Bruce MacIver,** Stanford University *Probing consciousness with anesthetics*
12:05 pm – 12:15 pm	**Anirban Bandyopadhyay,** National Institute of Material Sciences, Japan *Triplet of triplet fractal resonance band of tubulin, microtubule and neuron membrane: Quantum optics & microwave study*
12:15 pm – 12:45 pm	**General Discussion**

Day 4 – Friday - August 6, 2021 9:00 am – 12:30 pm PST/AZ

A Pre-Big Bang Universe: Conformal Cyclic Cosmology

Session Chair	**Sir Roger Penrose,** Oxford University
9:00 am – 9:45 am	**Paul Tod,** Oxford University *The mathematics behind Penrose's Conformal Cyclic Cosmology*
9:45 am – 10:30 am	**Brian Keating**, UC San Diego *Was there a Big Bang?*
10:30 am – 11:15 am	**Krzysztof Meissner,** University of Warsaw, Poland *Black holes and Cyclic Conformal Cosmology*
11:15 am – 12:00 noon	**Vahe Gurzadyan**, Yerevan Physics Institute, Armenia *Cosmological Constant, CCC, observations*
12:00 noon – 12:30 pm	**Discussion**