**Program Schedule |Science & Roger Penrose**

**Day 1 – Tuesday - August 3, 2021 9:00 am – 12:30 pm MST -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 Conformal Cyclic Cosmology— Connecting Threads*

**BLACK HOLES**

**Session Chair**

**Roger Penrose**, Nobel Laureate

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**

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 MST - AZ**

**QUANTUM MEASUREMENT – OBJECTIVE REDUCTION (OR)**

**Session Chair**

**Roger Blandford,** Stanford University

**9:00 am – 9:45 am**

**Ivette Fuentes-Guridi**

University of Southampton

*Exploring the unification of quantum theory and general relativity with a Bose-Einstein condensate”*

**9:45 am – 10:30 am**

**Hendrik Ulbricht**

University of Southampton

*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 C.E. 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 MST - 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**

**Jack Tuszyński,** University of Alberta - Panel Chair

**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**

**Discussion**

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

**A PRE-BIG BANG UNIVERSE: CONFORMAL CYCLIC COSMOLOGY**

**Session Chair**

**Sir Roger Penrose*,*** Nobel Laureate

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 Conformal Cyclic Cosmology*

**11:15 am – 12:00 noon**

**Vahe Gurzadyan**, Yerevan Physics Institute, Armenia

*Cosmological Constant, CCC, observations*

**12:00 noon – 12:30 pm**

Discussion

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