

Plenary Program PL1 - PL13

Tuesday June 6, 2017 Aventine Ballroom

PL1 2:00 to 4:10 pm

CAN MACHINES BE CONSCIOUS?

Sir Roger Penrose, Oxford, ‘How can Consciousness Arise Within the Laws of Physics?’

Joscha Bach, Harvard, ‘Consciousness as a Memory of Coordinating Attention: The

Conductor Model of Consciousness’

Hartmut Neven, Google, Quantum AI, ‘Possible Roles of Quantum Effects and Subjective

Experience in Artificial Intelligence’

Wednesday, June 7, 2017

PL2 8:30 to 10:40 am

LANGUAGE AND CONSCIOUSNESS

Thomas Bever, U Arizona, ‘Three Aspects of (Un)conscious Processing in Language

and its Normal Use’

Michael J Spivey, UC Merced, ‘Language, Consciousness and Embodied Cognition’

Noam Chomsky, MIT, ‘Language and Unconscious Mental Acts’

PL3 11:10 am to 12:30 pm

BIOPHYSICS 1 - MEMORY, SPIN AND ANESTHESIA

Matthew Fisher, UC Santa Barbara, ‘Are We Quantum Computers, or Merely Clever Robots?’

Travis Craddock, Nova Southeastern U, ‘A Unitary Mechanism of Anesthesia?: Altering Col-

lective Oscillations in Microtubules’

PL4 2:00 to 4:10 pm

NON-INVASIVE BRAIN STIMULATION

Marom Bikson, CCNY/CUNY, ‘Non-Invasive Brain Stimulation Devices to Change Thought

and Behavior’

John Allen, Arizona, ‘Transcranial Ultrasound, Mood, and Resting State Network Connectivity’

Marvin Berman, VielLight, ‘Integrating Noninvasive Photobiomodulation and

Neuromodulation›

Michael Rohan, Harvard, ‘The Effects of Low Field Magnetic Stimulation on Mood and Brain

Function’

Thursday, June 8, 2017

PL5 8:30 to 10:40am

PHYSICS, COSMOLOGY AND CONSCIOUSNESS

Ivette Fuentes, University of Vienna, ‘Gravity in the Quantum Lab’

Brian Keating, UCSD, ‘Conscious Cosmos’

James Tagg, Cengine, Penrose Institute, ‘Are Human Beings Computers?’

PL6 11:10 am to 12:30 pm

MUSIC AND THE BRAIN

Elaine Chew, Queen Mary University London, ‘Mind over Music Perception’

Scott Makeig, UCSD, ‘Mind Over Consciousness?’

PL7 2:00 to 4:10 pm

NEUROSCIENCE AND CONSCIOUSNESS 1

Stephen Grossberg, Boston U, ‘The Varieties of Brain Resonances and the Conscious Experi-

ences They Support’

Georg Northoff, U Ottawa, ‘Temporo-Spatial Theory of Consciousness’

Philip Low, NeuroVigil Inc., ‘From Sleeping Finches to Stephen Hawking: Harnessing the

Brain’s Whispers

Friday, June 9, 2017

PL8 8:30 to 10:40am

NEUROSCIENCE AND CONSCIOUSNESS 2 - ANOMALIES

Daniel P. Sheehan, U San Diego, ‘It’s About Time: Experiments in Consciousness and Retro-

causation’

Peter Fenwick, UC London, ‘A Meditation Teacher Who Can ‘Transmit’ Subjective Light/Energy’

Lakshmir S. Chawla, George Washington U, ‘End-of-Life Brain Activity’

PL9 11:10 am to 12:30 pm

BIOPHYSICS 2 - MEMRISTORS IN THE BRAIN?

Leon Chua, UCSF, ‘Brains are Made of Memristors’

Jack A. Tuszynski, U Alberta, ‘Microtubules as Subcellular Memristors’

PL10 2:00 to 4:10 pm

NEUROSCIENCE AND CONSCIOUSNESS 3

Gentry Patrick, UCSD, ‘Destruction as a Means of Remodeling: The Many Roles of Ubiquitin

at the Synapse’

VS Ramachandran, UCSD, ‘Embodied Brains and Disembodied Minds’

Charles F. Stevens, Salk Institute, UCSD, ‘The Evolutionary Brain Mechanisms That Underlie

Consciousness’

Soterix Medical

Transcranial Electrical Stimulation

Abhishek Datta

Roger Penrose Institute

Creativity Inspiration/Creativity Competition

James Tagg, **Erik Viirre**

Mclean Hospital, Harvard Medical School

Low Field Magnetic Stimulation

Michael Rohan

Arthur C. Clarke Center at UCSD

Assembly

Sheldon Brown

University of Arizona Center for Consciousness Studies

Transcranial ultrasound (‘TUS’) program

Chris Chan, **Betsy Bigbee**, **Stuart Hameroff**, **Jay Sanguinetti**

National Institute of Material Science, Tsukuba, Japan

Visualizing microtubule information processing

Anirban Bandyopadhyay

University of Alberta

Unfolding misfolded proteins to treat neurodegenerative disease

Jack Tuszynski

Geo-Pro-Ton, Slovenia

‘Avatar’ Cognitive Training and Quantum Zeno Effect

Rado and **Niko Gorjup**

Wellness – Health

The Chopra Center

You Are The Universe - Wellness Space

Daily 7:00 - 8:00 am

Mark Valladares, TennisCentric

Tennis Courts

Daily 6:30-7:30 am and 4-5 pm

Beryl Bender Birch, Yoga and Meditation

Social Events - badges required

Tuesday, June 6, 2017 – 7:00 to 10:00 pm

Opening Reception

Wednesday, June 7, 2017 – 9:00 – 11:00 pm

Club Consciousness

‘QUALIATIK’, ‘Dorian Electra and the Electrodes’

Thursday, June 8, 2017 – 6:00 to 10:00 pm

Conference Banquet**

Vicino

Advance registration required \$75* before May 25

Elaine Chew, Queen Mary University of London, Piano

Friday, June 9, 2017 – 10:00 pm to midnight

Club Consciousness

Elaine Chew, Queen Mary University of London

Scott Makeig - Brain Music Concert

‘QUALIATIK’, ‘Dorian Electra and the Electrodes’

Saturday, June 10, 2017

8:00 pm to ????

Poetry Slam, Talent Show, Finals: Creativity Competition

‘End-of-Consciousness’ Party

Barcino

Vicino Garden

Vicino

Vicino

Aventine

Vicino

www.consciousness.arizona.edu

A THE UNIVERSITY OF ARIZONA
Center for
Consciousness Studies

THE SCIENCE OF
CONSCIOUSNESS

June 5-10, 2017 | Hyatt Regency La Jolla
San Diego, California



Corrections and Updates to Abstract Book June 1, 2017

2017 TSC PLENARY

**Roger Penrose – Noam Chomsky – Deepak Chopra – Leon Chua
Peter Fenwick – Lakshmir Chawla – Anirban Bandyopadhyay
Jiapei Dai – Joscha Bach – Harmut Neven – Vs Ramachandran
Thomas Bever – Michael Spivey – Matthew Fisher – Travis Craddock
Marom Bikson – John Allen – Marvin Berman – Michael Rohan
Ivette Fuentes – Brian Keating – Jack Tuszynski – Gentry Patrick
Charles Stevens – James Tagg – Elaine Chew – Scott Makeig
Stephen Grossberg – Georg Northoff – Philip Low
Daniel Sheehan – Erik Viirre – Xu Yinglin – Bruce Damer
Alysson Muotri – Stuart Hameroff**

*“To have a glimpse of what consciousness is would be
the scientific achievement before which all others would pale.”*

William James

‘The Science of Consciousness’ (‘TSC’) is an interdisciplinary conference on all aspects of the nature of conscious experience, awareness, feelings and existence. How does the brain produce consciousness? Is consciousness intrinsic to the universe, or an epiphenomenal illusion? How can consciousness causally affect brain processes? What are the best empirical theories? Do we have free will? How did life and consciousness originate and evolve? What are the origins of moral and aesthetic values? How can we improve mental, physical and cognitive function? Can consciousness persist after bodily death, e.g. through ‘uploading’ to machines, or via mental processes tied to the natural world?

Informal, intensive and interdisciplinary in a fun environment, the 24th annual TSC conference will consist of Plenary Sessions, Pre-Plenary Workshops, Evening Concurrent Talk and Poster sessions, Technology and Art Exhibits, Social Events and Entertainment.

2017 TSC SAN DIEGO

Sponsored by
The Center for Consciousness Studies, The University of Arizona
‘TSC’ ‘The Science of Consciousness’ Conference Series - since 1994
The Center for Consciousness Science, The University of Michigan
Quantum Gravity Research, Los Angeles
Alvin J. Clark Foundation
The Roger Penrose Institute, La Jolla, California
The Bhaumik Institute of Theoretical Physics at UCLA (Mani Bhaumik Foundation)
The Arthur C. Clarke Center for Human Imagination, UCSD
Dayalbagh Educational Institute, Agra, India

Conference Program Committee

Stuart Hameroff (Chair),
Abi Behar-Montefiore, Betsy Bigbee, James Tagg, Erik Viirre, Jay Sanguinetti, Paavo Pylkkanen

Saturday, June 10, 2017

PL11 9:00 to 11:10 am

VIBRATIONS, RESONANCE AND CONSCIOUSNESS

Anirban Bandyopadhyay, NIMS, Tsukuba, ‘Vibrational Frequencies of Biomaterials are the Key to Integration of Information’

Jiawei Dai, South Central University, China, ‘Biophotonic Activities and Transmission in Relation to Consciousness’

Erik Viirre, UCSD, ‘Auditory Vibrations and Frequencies: Sounds in Your Head’

PL12 11:40 am to 1:00 pm

EASTERN PHILOSOPHY

Xu Yingjin, Fudan University, China, ‘Contemporary Theories of Consciousness and Nishida’s notion of ‘Basho’’

Deepak Chopra, Chopra Foundation, ‘Mind, Body, and Universe as Human Constructs’

PL13 2:30 to 4:40 pm

ORIGIN AND EVOLUTION OF LIFE AND CONSCIOUSNESS

Bruce Damer, UC Santa Cruz, ‘The Origin of Life and Consciousness’

Alysson R. Muotri, UCSD, ‘Cerebral Organoids for Neurodevelopmental and Evolutionary Studies

Stuart Hameroff, U Arizona, ‘The ‘Quantum Pleasure Principle’ - Did Life Evolve to Feel Good?’

Pre-Plenary Workshops (Included in conference registration)

Monday Morning Workshops

June 5, 2017 – 9:00 am to 1:00 pm

- Integrated DEI East-West Forum 1 (Dayalbagh Educational Institute, Agra, India) Aventine
- Artificial Intelligence and Machine Consciousness (Tagg, Bach, Neven, Penrose, Rimmel, Verschure) Syros
- Tenniscentric (Valladares) Tennis Courts
- Yoga and Meditation (Birch) Vicino Garden

Monday Afternoon Workshops

June 5, 2017 – 2:00 pm to 6:00 pm

- Integrated DEI East-West Forum part 2 Aventine
- Brain Stimulation/Consciousness Technology (Bikson, Sanguinetti, Berman, Rohan, Martin) Delphi
- Resonance, Life and Consciousness (Schooler, Hunt, Bandyopadhyay, Craddock, Grossberg, Chew) Athena A
- Consciousness and the Arts (Day, Seifert, Kostiner, Electra, QUALIATIK) Syros
- Redefining Well-Being: Consciousness (Jain, Guarneri, King, Evanow, Muehsam, Vieten) Mykonos A

Monday Evening Public Lecture

Institute of the Americas

June 5, 2017 - 6:30 pm to 8:00 pm

Sir Roger Penrose

Fashion, Faith and Fantasy and the Big Questions in Modern Physics

Institute of the Americas

10111 N. Torrey Pines Rd. • La Jolla, CA 92037 USA

<https://www.iamericas.org/en>

30 minute walk, 8 minute ride,

Simulcasts to Hyatt Regency La Jolla

Tuesday Morning Workshops

June 6, 2017 9:00 am to 1:00 pm

- Language and Consciousness (T. Bever, Chomsky, Spivey, O.Bever) Mykonos A
- Deepak Chopra - ‘The enlightened brain’ (Chopra) Aventine
- David Bohm Centennial (Pylkkanen, Musser, Walleczek) Athenia A
- Quantum Brain Biology (Craddock, Tuszyński, Hameroff, Bandyopadhyay) Vicino

Vicino Ballroom

CONCURRENT SESSIONS - Tuesday C1-C8

June 6, 2017 5:00 to 7:55 pm

C1: Dualism and Panpsychism

Schriner, Gradowski, Llamas, Remler, Kuznetsov, Kent, Kernion, Pylkkanen

Mykonos

C2: Memory and Consciousness

Nakano, Hsin-ping Wu, Gottlieb, Heile, Anokhin, Fazekas, Loisi, Xiao-Lan Song

Athenia

C3: Artificial Intelligence/Virtual Reality 1

Verschere, Lin, Bezzubova, Gackenbach, Leping Zha, Duan, Yang Liu, Elamrani

Delphi

C4: Consciousness and Molecular Biology

Wolf, Saluja, Sahni, Schiffer, Baker, Poola, Jiang

Milos

C5: Consciousness and Models of Reality 1

Markan, Yan He, Keppler, Bolaros, Gruber, Beichler, Andrews

Rhodes

C6: Altered States of Consciousness

Lopez-Silva, Dolcini, Villanueva, Gerken, Polito, Kanta Arora

Syros

C7: Quantum Ontologies 1

Globus, Rosseinsky, Rangarajan, Gaertner, Satsangi, Thomas, Prakash

Vicino

C8: Consciousness and Social Interactions

Olson, Mayhofer, Carrassi, Di Pizzo, Gautam, Harrison, Lloyd

Andros

Wednesday, C9-C16

June 7, 2017 5:00 to 7:55 pm

C9: Free Will and Intentionality

Besedin, Munoz-Jimenez, Guery, Westcombe, MacNeill, Elliott, Von Schweber

Mykonos

C10: Complexity and Brain Organization

Miyahara, Isler, Matsui, Bar Lev, Lahav, Maninder, Virmani

Athenia

C11: Language and Autism

Mizumoto, Pensotti, Mertsalov, Bhatnagar, Rai, Powell

Delphi

C12: Consciousness and Evolution

Fredriksson, Whiteley, Morrison, Bakker, Beran, Hamilton, Tirumalai, Oberst

Milos

C13: Meditation and Consciousness

Ahuja, Katyal, Saran, Goldstein, Birch, Mishra, Willman

Rhodes

C14: Consciousness and Quantum Measurement

McQueen, Kathpalia, Bhaumik, Roy, Camargo-Perez, Brophy, Gunji

Aventine

C15: Consciousness and Models of Reality 2

Korotkov, Haoying Liu, Awret, Alessandrini, Agarwal, Allsop

Syros

C16: Vibrations, Resonance and Consciousness

Roberts, Burgarella, Schooler, Hunt, Pyari, Katkova, Safin, Krishnananda

Andros

Friday, C17-C24

June 9, 2017 5:00 to 7:55 pm

C17: Explanatory Gap and Intentionality

Ebbers, Choate, Black, Xinyu Wei, Ruggeri, Jianfeng Li, Ting-An Lin

Mykonos

C18: Neuroscience Topics

Dinis-Pereira, Yu Feng, Clark, Persuh, Sanguinetti, Lei Zhang, Bettinger

Athenia

C19: Consciousness and Unconscious Processes

Ginzburg, Six, Stevenson, Gutman, Norman, Hedne

Delphi

C20: Mind Body

McKusick, Jain, Mruthinti, Evanow, Vieten, Yijun Liu,

Milos

C21: Artificial Intelligence and Models of Reality

Panov, Beck, Shirtz, Charan, Singh, Jyoti Kumar Arora

Rhodes

C22: Consciousness and Models of Reality 3

Khabeev, Narayanan, Jain, Cortel, Kim, Valladares, Preeti Srivistava, Ju Hyoung Lee

Syros

C23: Consciousness and the Arts

Day, Menshikova, Colbert, Kostiner, Malhotra, Idnani

Andros

C24: Quantum Ontologies 2

Hankey, Narayan, Rulin Xiu, Knox, Kohl, Blum, Green

Palatine

Wednesday, June 7, 7:00 to 10:00 pm

POSTER SESSION 1

P 1

Agarwal, Hans

Khatkale, Swati

Satsangi, Sumiran

Agarwal, Sapna

Khurana, Lokesh

Saxena, Rubina

Agarwal, MD, Siddharth

Kumar, Vinit

Sharma, Premkali

Alakh, Saini

Markan, Nagma

Sharma, Pallavi

Azevedo, Erico

Mathur, Reena

Sharma Mathur, Payal

Bhasin, Shobha

Mathur, Gazal

Shivhare, Neha

Bhasin, Rajneesh

Misra, Rupali

Singh, Sonal

Bhat, Seema

Mittal, Priyanka

Singh, Majer

Bommireddipalli, Aashiq

Parmar, Renu Singh

Singh, Meenu

Buglo, Elena

Paul, Sandeep

Sinha, Neha

Chellapilla, Patvardhan

Poudel, Ananda

Srivastava, Savita

Datta, Tapas

Prokash, Richa

Srivastava, Sumita

Gorjup, Rado

Pyari, Satgur

Srivastava, Ashima

Gupta, Shanti

Ramchandran, Sundaram

Srivastava, Kundan

Gupta, Saatviki

Rana, Neeti

Sundaram, Prem

Gupta, Chhavi

Saini, Dayal

Swami, Hardas

Gupta, Malvika

Sandhu, Dayal

Swaroop, Arati

Jois, Suresh

Saravanan, B

Tiwari, Lalitesh

Kapoor, Toran

Satsangee, Nandita

Trivedi, Chandra Prakash

Khan, Abdul Sameer

Satsangi, Tatavarty Neh

Zadey, Siddhesh

Friday, June 9, 7:00 to 10:00 pm

POSTER SESSION 2

P 2

Andrea, Mills

Dzhaber, Milana

Saini, Alakh

Aviv, Dorit

Gálíková, Silvia

Sarfarazi, Mohsen

Barbosa, Paulo

Graca, Nebojsa

Schafer, Robert

Barreto, Maribel

Guta, Mihretu

Shetkar, Rashmi (Reshma)

Barsotti, Tiffany

Hong, Injae

Sood, Deepshikha Nigam

Bozorgi, Gooya

Kashyap, Anhad

Steinorth, Ulrich

Brito, Ana

Kozyreva, Olga

Swami, B V

Chen, Shuo

Lee, Yeseul

Usvapelto, Ilona

Chiarella, Horacio Andres

Mathur, Ajeet

Ventureyra, Scott

Coelho, Jonas

Melkikh, Aleksei

Vucolova, Ludmila

Cohly, Hari

Muehsam, David

Wang, Cheng

Costa, Juliana

Pankovski, Toso

Williams, Matthew

Costa, Laura

Patil, Dnyandeo

Wong, Ming

Daneshfard, Babak

Peerally, Abed

Zegarac, Milica

Davis, Scott

Plotke, Robert

Zhang, Jiahe

Deli, Eva

Safina, Natalia

Zhu, Yaoping

ART-TECH-HEALTH EXHIBITS

Wednesday and Friday 7:00-10:00 pm

Paul Thomas, Quantum Consciousness, Art and Design

Margaret Dolinsky, Creativity and its Mediation for Navigating between Reality and Virtual Reality

Pam Payne, The Telenoetic Medium - Presentation of The Author’s Video Artwork, A Mnemonic Device to Facilitate Meditative, Noetic States of Consciousness

Jens Pilegaard, Musings on Captured Moments

Naama Kostiner, Create Your Own Flow

Jiyun Park, W[hole]ness - Scaling Consciousness/Cosmologies Through Geometry

Jeanne Marie Sanguinetti - Pac Man Line

Mimi Loup Brown, Artist

Cyndi Sanguinetti, Artist

SCIENCE AND TECHNOLOGY EXHIBITS

Wednesday and Friday 7:00-10:00 pm

Vielight Inc.

Infrared Photomodulation and Neurofeedback for Alzheimer’s disease

Marvin Berman

Grand Foyer

Grand Foyer

Grand Foyer

Grand Foyer