

# BRAIN, MIND, & CONSCIOUSNESS

THE SKEPTICS SOCIETY ANNUAL CONFERENCE 2005  
ON WHAT NOBEL LAUREATE FRANCIS CRICK CALLED  
“THE GREATEST UNSOLVED PROBLEM IN BIOLOGY”

May 13-15, 2005

Saturday events are at Beckman Auditorium, on the campus of the California Institute of Technology, Pasadena, CA. Friday evening and Sunday morning events are at the Westin Hotel in Pasadena, CA.

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# THE GREATEST UNSOLVED PROBLEM...

*"I wonder why, I wonder why. / I wonder why I wonder. /  
I wonder why I wonder why / I wonder why I wonder!"*

—Richard Feynman, as a young student

Research on the brain, mind, and consciousness was given a significant boost by Nobel laureate Dr. Francis Crick in 1994, when he wrote in his book, *The Astonishing Hypothesis*, "that 'you,' your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules."

This is what is called "the hard problem"—explaining how billions of neurons swapping chemicals give rise to such subjective experiences as consciousness, self-awareness, and awareness that others are conscious and self-aware; that is, not only the ability to wonder, but the ability to wonder why we wonder, and even wonder why others wonder why...

Explaining each of the functional parts of the brain is the *easy problem*, such as the differences between waking and sleep, discrimination of stimuli, or the control of behavior. By contrast,

what has come to be known as the *hard problem* in consciousness studies is *experience*: what it is like to *be in* a given mental state? Adding up all of the solved easy problems does not equal a solution to the hard problem. Something else is going on in private subjective experiences—called qualia—and there is no consensus on what it is.

Dualists hold that qualia are separate from physical objects in the world and that mind is more than brain. Materialists contend that qualia are ultimately explicable through the activities of neurons and that mind and brain are one. Our speakers, some of the top neuroscientists in the world, will address these and other problems, such as the evolution of the brain, and how and why it got to be so large. Skeptics will get a chance to interact with these world-class scientists on the breaks, during meals, and in a formal discussion period. We will also consider the implications of this new brain research to better understand apparent paranormal phenomena, as well as how and why people believe weird things.



Hosted by

## Dr. Michael Shermer

Executive Director of the Skeptics Society, Publisher of *Skeptic* magazine, monthly columnist for *Scientific American*, and author of *Why People Believe Weird Things*, *How We Believe*, and *The Science of Good and Evil*.



Introduction by

## Roger Bingham

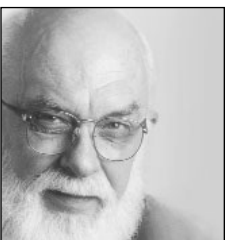
Center for Brain and Cognition, University of California, San Diego and Computational Neurobiology Laboratory, the Salk Institute; co-founder, The Science Network; co-author of *The Origin of Minds*, creator of *The Human Quest*, the highly acclaimed PBS documen-



Saturday Evening  
Special Guest

## MICHAEL CRICHTON

"In Conversation with Michael Shermer"



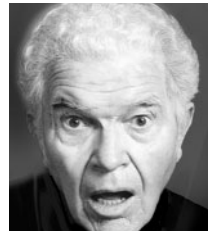
Plus: The one, the only

## James Randi

## FRIDAY NIGHT PARTY MAGIC & ILLUSIONS

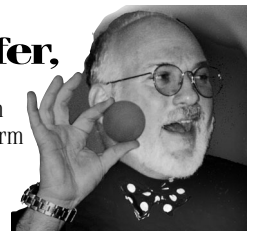
### Jerry Andrus

visionary,  
magician,  
skeptic—  
& the world's greatest  
inventor of optical  
illusions will set up  
his equipment so you can experience and  
enjoy some of the bizarre quirks of visual  
perception.



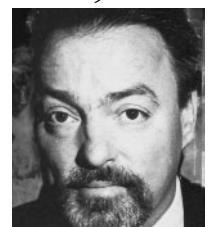
### Bob Friedhoffer,

science aficionado  
A.K.A. "the Madman  
of Magic" will perform  
close-up magic and  
a stage show.



### Mark Edward,

mentalist, magician, &  
master of the seance  
will Demonstrate the  
dark side of magic—  
close up and a stage  
show.



# CONVENTION SCHEDULE

**FRIDAY (THE 13th), MAY 13**

Westin Hotel 191 Los Robles, Pasadena, CA

- 5:00-6:00 pm REGISTRATION  
6:00-8:00 pm PARTY. Cash bar, complimentary Hors d'Oeuvres, close up magic, visual illusions  
8:00-8:30 pm MAGIC STAGE SHOW BY BOB FRIEDHOFFER the "Madman Of Magic"  
8:30-9:00 pm MENTALISM STAGE SHOW BY MARK EDWARDS, mentalist and magician  
9:00-midnight SKEPTICS SOCIAL, Westin Hotel lounge

**SATURDAY, MAY 14**

Beckman Auditorium,  
California Institute of Technology, Pasadena, CA

- 7:00-8:45 REGISTRATION, Continental breakfast, book table  
8:45-9:00 MICHAEL SHERMER: "Demon-Haunted Brain" Conference Introduction  
9:00-9:30 ROGER BINGHAM: "Aun aprendo— Still Learning About Minds"  
9:30-10:00 CHRISTOF KOCH: "The Quest for Consciousness: A Neurobiological Approach"  
10:00-10:30 ALISON GOPNIK: "Children as Scientists: How the Brain Learns to Think"  
10:30-11:00 STEVEN QUARTZ: "Neuroeconomics and the Search for 'Cool'"  
11:00-11:30 Panel Discussion & Audience Q & A with speakers

LUNCH BREAK 11:30-1:00  
(Lunch is included in conference fee)

- 1:00-1:30 Richard McNally: "In Search of Memory—True, False, Remembered, Repressed, Recovered"  
1:20-2:00 TERRY SEJNOWSKI: "Sleep, Dreams, and the Subconscious"  
2:00-2:30 V. S. RAMACHANDRAN: "Neurotheology & the Search for God"  
2:30-3:00 SUSAN BLACKMORE: "The Grand Illusion of Consciousness"  
3:00-3:30 Panel Discussion & Audience Q & A with speakers

AFTERNOON BREAK 3:30-4:00

- 4:00-4:30 JOHN ALLMAN: "The Search for the Neurological Basis of the Social Emotions"  
4:30-5:00 PAUL ZAK: "From Whence Trust Comes: Oxytocin and Behavioral Economics"  
5:00-5:30 HANK SCHLINGER: "Consciousness Is Nothing But A Word." Debunking the Last Great Myth in Psychology"  
5:30-6:00 URSULA GOODENOUGH: "From Biology to Consciousness to Morality"  
6:00-6:30 PANEL DISCUSSION AND AUDIENCE Q & A.

DINNER BREAK 6:30-7:45  
(Dinner is included in conference fee)

- 7:45-8:15 JAMES RANDI  
8:15-9:30 MICHAEL CRIGHTON: "In Conversation with Michael Shermer"

**SUNDAY MORNING, MAY 15**

Westin Hotel 191 Los Robles, Pasadena, CA

- 11:00-1:00 BRUNCH AND SKEPTICS SOCIAL at the Westin "Oaks" restaurant and patio (The all-you-can-eat brunch is \$25 and is not included in the conference fee.)



**Dr. JOHN ALLMAN**, Molecular, Cellular, and Integrative Neuroscience, Biology Division, California Institute of Technology, author of *Evolving Brains*, conducts research on the evolution and development of the brain, reconstructions of cerebral cortex, the interface between emotion and cognition, and the relationship between the anterior cingulate cortex and attention deficit disorder, depression, obsessive-compulsive disorder, phobias, post-traumatic stress, and anxiety disorders.



**Dr. Susan Blackmore**, is a Visiting Lecturer at the University of the West of England, Bristol. With degrees in psychology and physiology from Oxford University and a Ph.D. in parapsychology from the University of Surrey, her research interests include memes and the theory of memetics, evolutionary theory, consciousness, and meditation. She is author of *Beyond the Body*, *Dying to Live*, *In Search of the Light*, and *Test Your Psychic Powers*, *The Meme Machine*, and *Consciousness: An Introduction*.



**Dr. Ursula Goodenough**, Professor of Biology, Washington University, St. Louis, MO; conducts research on cell biology, the evolution of the genes governing mating-related traits, the molecular basis for flagellar motility, emergent properties in biological systems, the evolution of symbolic communication in primates, and the interface of science and religion. She is the author of the widely adopted textbook, *Genetics*, and of the popular science book, *The Sacred Depths of Nature*.



**Dr. Alison Gopnik**, Professor of Psychology, University of California, Berkeley; runs the cognitive development lab, conducting research on cognition, brain, and behavior; theory of mind; psychology and philosophy; how children develop and change intuitive theories of the world in much the way that scientists do; children's causal knowledge and causal learning across domains, including physical, biological and psychological knowledge; in essence, how the brain learns to think.



**Dr. Christof Koch**, obtained his Ph.D. in (bio)-physics with a minor in Philosophy. After four years at MIT, he joined the California Institute of Technology, where he is the "Lois and Victor Troendle Professor of Cognitive and Behavioral Biology." His laboratory focuses on experimental and computational research pertaining to neuronal correlates of selective visual attention and consciousness in the mammalian brain, a topic he worked on for the past 16 years with the late Francis Crick.



**Dr. Richard J. McNally**, Department of Psychology, Harvard University, author of *Remembering Trauma* and the classic paper in *Psychological Science*, "Psychophysiological Responding During Script-Driven Imagery in People Reporting Abduction by Space Aliens," in which he demonstrated that imaginary traumas are as terrifying as the real thing. Conducts research on memories: true, false, recovered, repressed, and remembered.



**Dr. Stephen Quartz**, Division of Humanities & Social Sciences, and Computation and Neural Systems Program, and Director, Social Cognitive Neuroscience Laboratory, California Institute of Technology, co-author of *Liars, Lovers, and Heroes: What the New Brain Science Reveals About How We Become Who We Are*, conducts research in neuroeconomics, the neural correlates of product branding, and the neuroscience of moral behavior, cooperation, competition, and the development of trust.



**Dr. V.S. Ramachandran**, Director of the Center for Brain and Cognition and Professor of Psychology, University of California, San Diego, author of *Phantoms in the Brain: Probing the Mysteries of the Human Mind*, *The Emerging Mind*, and *A Brief Tour of Human Consciousness*, and is Editor-in-chief of the *Encyclopedia of Human Behavior*. *Newsweek* magazine called him one of the "hundred most prominent people to watch in the next century."



**Dr. Hank Schlinger**, Department of Psychology, California State University, Northridge, has authored *Psychology: A Behavioral Overview*, *A Behavior-Analytic View of Child Development*, and *Introduction to Scientific Psychology*, and articles in the *Journal of the Experimental Analysis of Behavior*, *American Psychologist*, *Pharmacology, Biochemistry and Behavior*, *Psychopharmacology*, *Psychological Record*, *The Analysis of Verbal Behavior*, *The Behavior Analyst*, *Journal of Mind and Behavior*, *SKEPTIC* and *Skeptical Inquirer*.



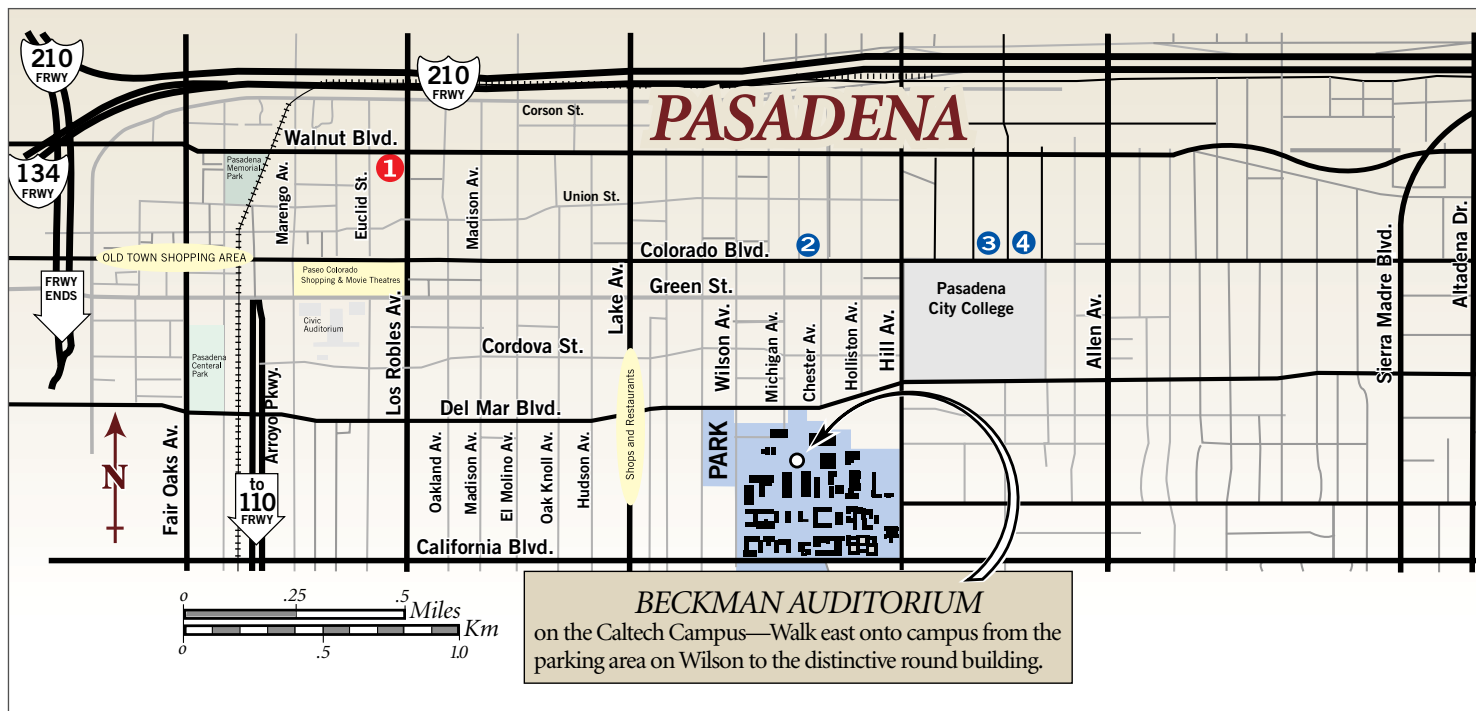
**Dr. Terry Sejnowski**, Director, Computational Neurobiology Laboratory, Salk Institute, Advisory Board Chair of The Science Network, author of *Liars, Lovers, and Heroes: What the New Brain Science Reveals About How We Become Who We Are*, conducts research on the hippocampus, believed to play a major role in learning and memory; and the cerebral cortex, which holds our knowledge of the world and how to interact with it.



**Dr. Paul J. Zak**, is Adjunct Professor of Neurology at Loma Linda University, CA, and the founding director of the Center for Neuroeconomics Studies at Claremont Graduate University, CA. He studies the neurophysiology of decision-making, including the roles of reward and risk-aversion, as well as the neural substrates of social decisions. Much of his research characterizes the neural basis for interpersonal trust and trustworthiness.



# TRAVEL AND LODGING



**① Host Hotel:** THE WESTIN, Pasadena, 191 North Los Robles Ave., Pasadena, CA 91101. Reservations: 626/304-1421, ask for Skeptics Society/Caltech rate: \$139.00 single/double occupancy per night. This is a fabulous rate for a very nice hotel! We encourage everyone to stay here for the social aspects as well. Transportation will be provided to Caltech Saturday morning and back to the Westin Saturday night.

The Westin is just a little over one mile from the Caltech campus, and within walking distance of Old Town Pasadena with dozens of fine restaurants, shops, bookstores, theatres, and restaurants, and the Pacific Asian Museum; and a short drive to Huntington Library & Gardens and the Norton Simon Museum and other Southern California attractions.

All guest rooms are very plush and feature *The Heavenly Bed*, *The Heavenly Bath*, dual-line telephones with voice messaging, in-room data port, complimentary Starbucks coffee. The Westin provides a complimentary town car within a 15-minute radius (does not include airports).

## On a budget?

Stay at: ② Vagabond Inn 626/449-3170, 1203 E. Colorado Blvd., Pasadena; ③ Saga Motor Inn 626/795-0431, 1633 E. Colorado Blvd., Pasadena; ④ Westway Inn 626/304 9678, 1599 E. Colorado Blvd., Pasadena. All are within walking distance of Caltech.

## Airports & Transportation:

Burbank Airport is just 20 minutes from Pasadena, serviced by Alaska, Aloha, American, American West, United, and Southwest Airlines. Los Angeles International Airport (LAX) is 45 minutes to 1.5 hours (depending on traffic) from Pasadena, but it is serviced by all airlines and offers greater travel flexibility. **Shuttle Service** from both airports to the Westin: Least expensive: Prime Time Shuttle: 800/733-8267; SuperShuttle: 800/258-3826; Xpress shuttle: 800/427-7483. More expensive: Taxi Services: 800/750-4400; People's Taxi: 800/505-2227. Most expensive: Limousine: Fleetwood: 800/283-5893; ITS: 800/487-4255

## Driving Directions:

**To Caltech:** Off the 210 Freeway in Pasadena, exit Lake Ave and go south. Left on Del Mar, right on Michigan, which terminates at Caltech. Park in the faculty parking lot to the left, or in the student parking lots to the right. Beckman Auditorium is the large white round building at the south end of the faculty parking lot. Off the 110 Freeway, follow to the end and continue north on Arroyo Parkway, right on Del Mar, right on Michigan, follow parking instructions above.

**To Westin Hotel:** Off the 210 Freeway, exit Lake Ave and go south. Right on Walnut, left on Los Robles, hotel is on the SW corner (191 N. Los Robles Ave). Off the 110 Freeway, follow to the end and continue north on Arroyo Parkway, right on Colorado Blvd., left on Los Robles, hotel is two blocks north on the left side. From Burbank Airport, take the 5 South to the 134 East (Pasadena) to the 210 East, follow instructions above. From LAX, take the 105 freeway east, to the 110 North, follow instructions above.