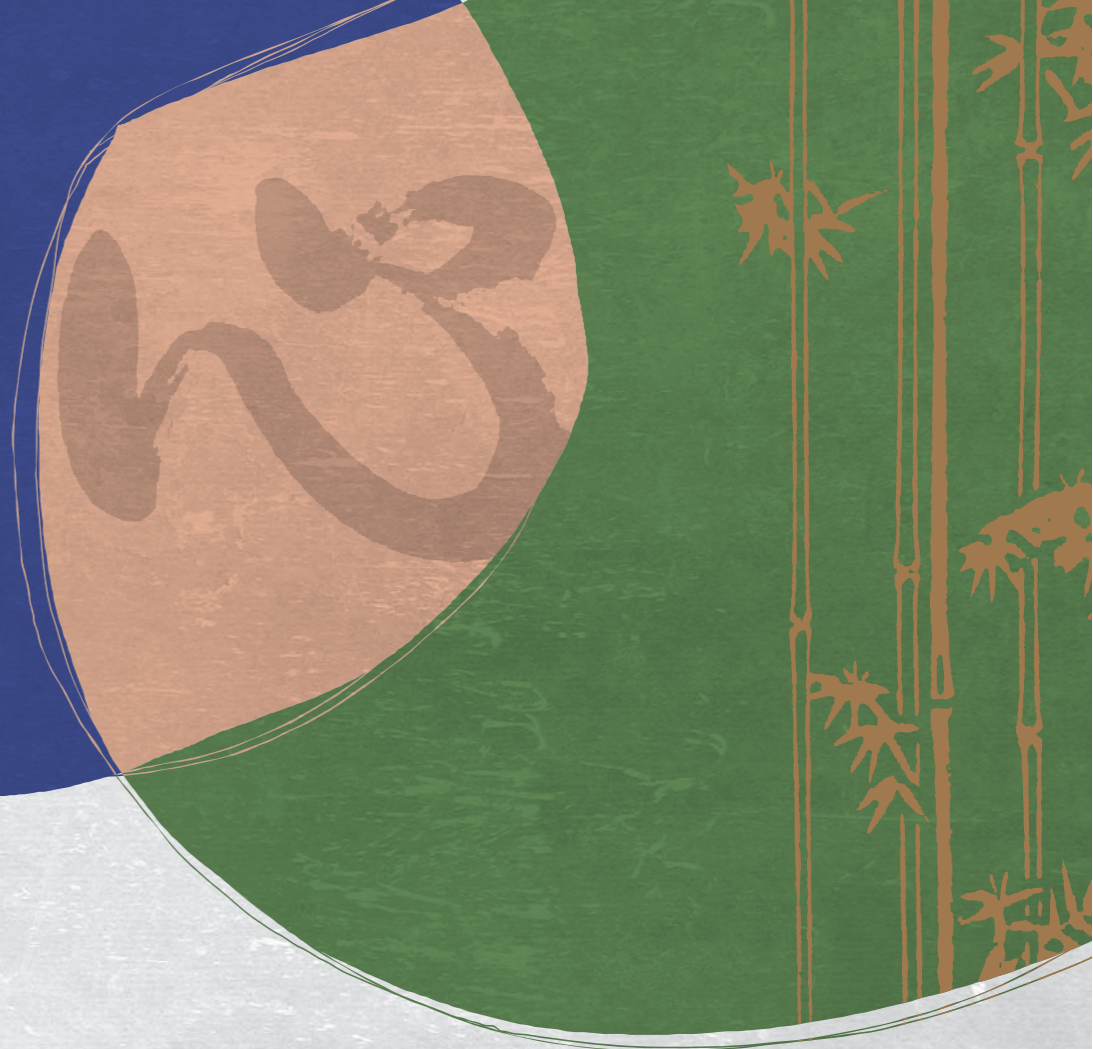


KYOTO HOTEL OKURA, KYOTO, JAPAN

APRIL 11 AND 12, 2014



# MAPPING THE MIND

A DIALOGUE BETWEEN SCIENTISTS  
AND CONTEMPLATIVE SCHOLARS-PRACTITIONERS

A COLLABORATION BETWEEN  
THE KOKORO RESEARCH CENTER, KYOTO UNIVERSITY  
AND THE MIND & LIFE INSTITUTE

## MIND & LIFE INSTITUTE

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MIND & LIFE  
INSTITUTE



KOKORO  
RESEARCH  
CENTER  
KYOTO UNIVERSITY



Every April in Kyoto, the old capital of Japan, millions of cherry blossoms burst into bloom, enchanting the hearts of visitors and residents alike. It is in this most beautiful season that the Mind & Life Institute and Kyoto University's Kokoro Research Center jointly invite scientists and contemplative practitioners into a dialogue with His Holiness the Dalai Lama. For a quarter century, the Mind & Life Institute has promoted this kind of dialogue to integrate the traditions of scientific knowledge and contemplative wisdom. Joining in this endeavor for the first time, eminent Japanese scholars will convene in Kyoto this Spring, examining the theme of "Mapping the Mind."

"Life is so fragile and the present is so rich."

– neurobiologist Francisco Varela  
(a founder of the Mind & Life Institute)

Varela's words resonate with the Japanese appreciation of the evanescent yet unforgettable cherry blossoms in the Kyoto Spring. Despite their fragility, the flowers bloom unfailingly every year. This richness of the present – the wisdom blossoming from dialogues with His Holiness the Dalai Lama – will surely herald fruitful messages for our common future.



## Introduction of Kokoro Research Center

Kyoto University's Kokoro Research Center officially commenced operations in April of 2007. Bringing together researchers from disparate academic disciplines, the center serves as a research organization unique not only in Kyoto but in Japanese academia nationwide. The Japanese word kokoro includes the nuances of heart and soul, mind and spirit; the name of this research center envisions the growth of the human spirit in our future society. We hope that the fruits of our interdisciplinary research will support a richer and more abundant human spirit as our world continues to develop.

Kokoro is invisible energy, acting inherently and irreplaceably in each human being. We are all intuitively intimate with the workings of our kokoro (hearts, minds, and spirits), but when our kokoro is inharmonious or disrupted, it can erupt in violence, anomie, apathy, addiction, and antisocial or self-destructive behavior. The Kokoro Research Center is committed to investigating the causes of and possible solutions to such psychologically-based problems, with the goal of facilitating open-mindedness, well-being, and self-esteem.

Most psychosocial problems derive from a multiplicity of environmental and causal factors, which lack simple solutions. Even now, many academic disciplines are advancing research on the human mind. All too often, their ever-increasing specialization and subdivision leads to abstract generalizations or to microscopic particularity, risking the loss of a holistic sense of reality on a personal and embodied scale. To offset these tendencies, we feel the need for research that once again places embodied human behavior at the center of research about mind and consciousness. Our searches for answers require complementary and integrated approaches: cognitive and neuroscientific views of mind, historical and cultural views of mentality, and ethical and religious views of the human spirit.

Within this framework, we endeavor to empirically illuminate such varied functions of kokoro as intelligence, emotion, feelings, values, empathy, and communication. We hope to re-examine the ways in which these particular functions interact to form the richness of our kokoro. Only on the basis of such careful and integrated research can we venture to suggest new approaches to these complex psychosocial problems. For this purpose, our center aims to become a locus of academic creativity, fostering collaborative and cooperative research projects, building on international as well as national scholarly networks. To publicly disseminate the activities and results of our academic research, we conduct public symposia, workshops, seminars, and conferences. It is our deepest hope that the results of our unique multidisciplinary work will be of real benefit to our broader society.



**Sakiko Yoshikawa**  
Director, Professor  
Kokoro Research Center  
Kyoto University

## Introduction of Mind & Life Institute

For the past 30 years, the Mind & Life Institute has pioneered the field of contemplative science. In pairing the oldest wisdom traditions with cutting-edge scientific research, contemplative science uncovers groundbreaking and holistic insights into the human mind and condition. These insights represent some of the most important breakthroughs of our time. Mind and Life's work operates in an array of rigorous fields—neuroscience, psychology, education, medicine, ethics, religion, the humanities—and is always guided by the Institute's larger mandate to alleviate suffering, cultivate kindness and compassion, and advance human flourishing.

Mind and Life emerged in 1987 from a meeting of three visionaries: Tenzin Gyatso, the 14th Dalai Lama, the spiritual leader of the Tibetan people and a global advocate for compassion; Adam Engle, a lawyer and entrepreneur; and Francisco Varela, a neuroscientist. While the trio understood that science had become the dominant framework for investigating the nature of reality—and the modern source for knowledge that could help improve the lives of humans and the planet—the three regarded this approach as incomplete. Whereas science relies on empiricism, technology, “objective” observation, and analysis, the Dalai Lama, Engle, and Varela were convinced that well-refined contemplative practices and introspective methods could, and should, be used as equal instruments of investigation—instruments that would not only make science itself more humane but also ensure its conclusions were far-reaching. Mind and Life was formed to bridge this divide and advance progress in human well-being.

Since that first Dialogue with the Dalai Lama, Mind and Life has held 26 others that bring together scientists and contemplatives on a wide range of critical subjects: addiction, ecology, ethics, attention, neuroplasticity, destructive emotions, altruism, economics, and more. Additionally, over the past 30 years, Mind and Life's work has extended beyond the Dialogues. The Institute has become a direct funder of individual research via its grant and scholarship programs. It convenes an annual Summer Research Institute, as well as the field's marquee biannual conference: the International Symposium for Contemplative Studies. In the process, Mind and Life has become more than just a leader in the field of contemplative science; it has become an incubator for discovery in all the fields this new science touches. The Institute's impact has been chronicled in numerous best-selling books, including *Train Your Mind, Change Your Brain* by Sharon Begley; *Destructive Emotions* by Daniel Goleman; and *The Dalai Lama at M.I.T.* by Anne Harrington and Arthur Zajonc. Through the support of Mind and Life, researchers have produced dozens of pivotal studies and more than 200 journal articles, chapters, and books; participated in more than 300 public talks; obtained prestigious faculty appointments, fellowships, and directorships; and been awarded more than \$15 million in follow-on funding.

Over the next several years, the Institute will undertake its most ambitious phase yet: three global initiatives in the areas of ethics, education, and human development; craving, desire, and addiction; and mapping the mind. Those initiatives will be aided by an international office in Switzerland—Mind and Life Europe—and global partners in Asia and beyond.



**Arthur Zajonc**  
President  
Mind and Life Institute

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The nature of the human mind remains one of the most profound unresolved questions we face as a species. While the mind's ultimate nature may forever elude us, we can nonetheless carefully study the mind's characteristics, capabilities, and associated phenomena. We have mapped the human genome, the night sky and the fundamental particles of the physical universe, yet that which is closest to us - our mind - has still to be adequately mapped. An important missing element in the study of the mind is the failure of contemporary science to critically engage with the inherited wisdom of the contemplative traditions, for example, the many insights to be found in Buddhist philosophy concerning the mind. In this Mind and Life/Kokoro dialogue, we bring together experts from the Buddhist contemplative tradition, including His Holiness the 14th Dalai Lama, with experts from modern psychology, philosophy of mind, neuroscience, and other relevant disciplines.

Over two days, His Holiness the Dalai Lama will dialogue with these scientists, researchers and contemplative practitioners from Japan and North America in order to comprehensively consider the nature, characteristics and operations of the mind. In this way we hope that our Mapping the Mind dialogue will be a significant contribution toward redressing the absence of the contemplative perspective in these efforts. The goal of this colloquium, therefore, is to garner a greater understanding of the various aspects of the human mind and its potential, which will not only lead to a more comprehensive understanding of the mind, but also to lay the foundation for innovations in education and greater mental well-being.

## Organizers

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### Kokoro Research Center, Kyoto University

**Sakiko YOSHIKAWA**  
Director and Professor, KRC, Kyoto University

**Kazuo MURAKAMI**  
Professor Emeritus, Tsukuba University

**Seiji KUMAGAI**  
Associate Professor, KRC, Kyoto University

**Marc-Henri DEROCHE**  
Assistant Professor, *Hakubi* Center for Advanced Research &  
Graduate School of Letters, Kyoto University

**Akinori YASUDA**  
Research Fellow, KRC, Kyoto University

**Geshe Gawa THUPTEN**  
Research Fellow, KRC, Kyoto University

**Molly VALLOR**  
Assistant Professor, Graduate School of Humanities, Kobe University

**Masahide TSUJIMURA**  
Assistant Professor, Research Institute for Economics and Business Administration,  
Kobe University

**Kengo KONISHI**  
Research Fellow, Otani University

### Mind & Life Institute

**Arthur ZAJONC**  
President, Mind & Life Institute and Professor Emeritus, Amherst College

**Jacqui DEFELICE**  
Director of Advancement and Global Development, Mind & Life Institute

**Heather Lee LOHR**  
Director of Operations, Mind & Life Institute

**Wendy HASENKAMP**  
Senior Scientific Officer, Mind & Life Institute

## Presenters

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### Kokoro Research Center's Presenters

**Makoto NAGAO**

Professor Emeritus, Kyoto University  
Former President of Kyoto University  
Former Director of the National Diet Library of Japan

**Yoshiro IMAEDA**

Former Research Director, Centre National de la Recherche Scientifique (CNRS), Paris  
Tibetologist and Bhutanese Studies specialist

**Atsushi IRIKI (moderator)**

Senior Team Leader, RIKEN Brain Science Institute  
Specially Appointed Professor, Kokoro Research Center, Kyoto University  
Lee Wee Nam Visiting Professor, Nanyang Technological University, Singapore  
Visiting Professor, University College London, United Kingdom

**Shigefumi MORI**

Professor, Research Institute for Mathematical Sciences, Kyoto University  
Fields Medal Recipient (1990)

**Junko TANAKA-MATSUMI**

Professor, Department of Integrated Psychological Sciences, Kwansei Gakuin University  
Dean of the School of Humanities, Kwansei Gakuin University

**Shinsuke SHIMOJO**

Gertrude Baltimore Professor of Experimental Psychology, California Institute of Technology  
Specially Appointed Professor, Kokoro Research Center, Kyoto University

**Shinobu KITAYAMA**

Professor, Department of Psychology, University of Michigan  
Director of the Center for Culture, Mind, and the Brain, University of Michigan  
Specially Appointed Professor, Kokoro Research Center, Kyoto University

## Presenters

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### Mind & Life Institute's Presenters

**Arthur ZAJONC**

President of Mind & Life Institute  
Professor Emeritus of Physics, Amherst College

**Roshi Joan HALIFAX**

Buddhist Scholar  
Founder and Abbot of Upaya Institute and Zen Center  
Board Member of Mind & Life Institute

**Geshe Thupten JINPA**

Tibetan Buddhist Scholar, English Translator to the Dalai Lama  
Adjunct Professor, McGill University  
Board Chair, Mind & Life Institute

**Richard J. DAVIDSON**

Professor of Psychology and Psychiatry, University of Wisconsin-Madison  
Board Member of Mind & Life Institute

**Barry KERZIN (Venerable Tenzin Choerab)**

Buddhist monk, practitioner, teacher, and author  
Medical doctor and personal physician to the Dalai Lama  
Chairman of Human Values Institute

**Jay L. GARFIELD**

Kwan Im Thong Hood Cho Temple Professor of Humanities at Yale-NUS College  
Doris Silbert Professor in the Humanities at Smith College  
Professor of Philosophy at the National University of Singapore, Yale University, the University of Melbourne and the Central University of Tibetan Studies



## Event Schedule (Day 1)

### Mapping the Mind: Overview 11th April 2014

<b>8:00 – 8:30</b>	<b>Registration</b>
<b>8:30 – 9:00</b>	<b>Opening Session</b>
8:30–8:35	Introduction
8:35–8:45	Opening remarks 1 (Arthur Zajonc, MLI)
8:45–8:55	Opening remarks 2 (Sakiko Yoshikawa, KRC)
8:55–9:00	Entry of His Holiness the 14th Dalai Lama
<b>9:00 – 11:30</b>	<b>Session 1</b>
9:00–9:30	Remarks by His Holiness the 14th Dalai Lama
9:30–10:00*	<i>Yoshiro Imaeda</i> , Mind in Early Buddhism
10:00–10:30	<i>Thupten Jinpa</i> , Taking Buddhist Psychology and Contemplative Perspectives Seriously
10:30–11:00	<i>Richard J. Davidson</i> , Change Your Brain by Transforming Your Mind: Neuroscientific Studies of Meditation
11:00–11:30	Group Discussion and remarks from His Holiness the 14th Dalai Lama
*All presenters throughout the meeting will have 15 min of presentation & 15 min of discussion	
<b>11:30 – 13:00</b>	<b>Lunch</b>
<b>13:00 – 15:00</b>	<b>Session 2</b>
13:00–13:30	<i>Jay L. Garfield</i> , Cognitive Illusions: A Yogācāra Perspective
13:30–14:00	<i>Arthur Zajonc</i> , The Role of Mind in Quantum Physics
14:00–14:30	<i>Shigeo Mori</i> , Mathematics in Comparison with Art: Looking for Applications, Truth or Beauty?
14:30–15:00	Group Discussion and remarks from His Holiness the 14th Dalai Lama
<b>15:00 – 15:15</b>	<b>Closing Session</b>
15:00–15:05	Exit of His Holiness the 14th Dalai Lama
15:05–15:15	Announcements
<b>18:00 – 20:00</b>	<b>Banquet</b>
17:30	Open
18:00	Start
18:00–18:05	Opening Remarks 1
18:05–18:10	Opening Remarks 2
20:00	Closing Remarks

## Event Schedule (Day 2)

### Mapping the Mind: Societal Implications 12th April 2014

<b>8:30 – 9:00</b>	<b>Registration</b>
<b>9:00 – 11:00</b>	<b>Session 3</b>
9:00–9:30	<i>Shinobu Kitayama</i> , Cultural Neuroscience: Connecting Culture, Brain, and Genes
9:30–10:00	<i>Joan Halifax</i> , A Process-based Map of Compassion and its Implications on Compassion Training
10:00–10:30	<i>Shinsuke Shimojo</i> , Implicit Mind, Sympathy, and Shared Reality
10:30–11:00	Group Discussion and remarks from His Holiness the 14th Dalai Lama
<b>11:00 – 12:30</b>	<b>Lunch</b>
<b>12:30 – 14:30</b>	<b>Session 4</b>
12:30–13:00	<i>Barry Kerzin</i> , Emotional Plasticity: A Healthy Society
13:00–13:30	<i>Junko Tanaka-Matsumi</i> , Mapping the Mind of Children and Creating a Positive School Environment: Evidence-Based Practice in Psychology
13:30–14:00	<i>Makoto Nagao</i> , How Close Can Computers Get to Human Beings?
14:00–14:30	Group Discussion and remarks from His Holiness the 14th Dalai Lama
<b>14:30 – 15:00</b>	<b>Closing Session</b>
14:30–14:45	Closing Remarks by His Holiness the 14th Dalai Lama
14:45–14:50	Closing Remarks 1
14:50–14:55	Closing Remarks 2
14:55–15:00	Group photo and Exit of His Holiness the 14th Dalai Lama



## Presentation Abstracts (Day 1)

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### **Mind in Early Buddhism**

*Yoshiro Imaeda*

Mind has been one of the subjects to which Buddhism has devoted its utmost attention for the last 25 centuries. In this field, no one has laboured with greater industry and acumen than Buddhist thinkers, starting with its founder, the Buddha himself. This is clearly reflected by the presence of numerous passages contained in the earliest Buddhist texts such as *Suttanipāta* and *Dhammapada*. Those texts contain profound introspective inquiries into the nature and processes of mind. According to them, the mind is not an entity, remaining the same over the course of life, but something that is constantly modified by external stimuli and goes through perpetual and inherent change. The intermittent coming and going of mental pulsations is often compared with the movement of a monkey: “They seize (and) let go like a monkey seizing and releasing a branch.” This introspective heritage of the East is now held in high esteem in modern Western psychology and neuroscience. While the current mutual discussion and collaboration is welcome, it should not be forgotten that Buddhist inquiries into the nature and process of mind have never been of scientific nature or for scientific purpose *per se*. According to Buddhism, the mind is regarded as the guide or governor of the individual, under the Platonic simile of charioteer. If the nature of mind has been so minutely and subtly analyzed and investigated by Buddhist scholars, it is above all for the self-control and governance of sense-impressions and sense-desires, which is the prerequisite for attaining the final goal of Buddhism: nibbana (*nirvāṇa*). In the pursuit of mapping the mind, it seems important to follow the “Middle Path”: the balance between the purely scientific investigation and the Buddhist aim of self-control.

### **Taking Buddhist Psychology and Contemplative Perspectives Seriously**

*Thupten Jinpa*

This presentation will focus on the key question of what classical Buddhist psychology, especially Abhidharma, and associated contemplative practices can contribute towards “Mapping the Mind.” Taking as examples a few key factors from the Abhidharma taxonomy, I shall demonstrate how Abhidharma’s definition of cognitive and affective processes reveal the specific functions of these processes as well as their dynamic relationship to other mental factors. I will also show how critical examination of the key Buddhist contemplative practices - mindfulness, compassion, and forbearance - can also help reveal insights pertaining to interrelations between various mental factors. The presentation will conclude with observations of how the Abhidharma and Buddhist contemplative perspectives can be brought as key partners in mapping the mind, an endeavor that is, by its very nature, bound to be a multi-disciplinary enterprise.

### **Change Your Brain by Transforming Your Mind: Neuroscientific Studies of Meditation**

*Richard J. Davidson*

This talk will present an overview of studies conducted in our laboratory over the past six years on neural changes associated with different forms of meditation. Distinctions among three major forms of meditation practice will be made: Focused Attention; Open Monitoring; and Positive

## Presentation Abstracts (Day 1)

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Affect Training. These different forms of meditation have different neural and behavioral effects. From the perspective of Western neuroscience, different forms of meditation can be conceptualized as mental training to promote the regulation of emotion and attention. Data from studies on long-term meditation practitioners as well as those with shorter durations of training will be highlighted. In addition, some longitudinal studies that track changes over time with meditation practice will be reviewed. In addition to the neural changes that have been observed, this talk will also summarize changes that have been found in peripheral biology that may modulate physical health and illness. The central brain circuitry of emotion is especially implicated in peripheral biological changes that have consequences for health. The overall conclusions from these studies is that one can transform the mind through meditation and thereby alter the brain and the periphery in ways that may be beneficial for mental and physical health, and for well-being.

### **Cognitive Illusions: A Yogācāra Perspective**

*Jay L. Garfield*

We often take for granted that our introspective access to our own cognitive, affective and perceptual states is immediate and veridical, and that reflection on the nature of experience provides data for phenomenology, psychology and neuroscience. Recent research into cognitive illusion casts doubt on the value of introspective reports, however. More general reasons for skepticism about the value of introspection comes from the Buddhist philosophical tradition most associated with meditative practice, the Yogācāra. I will reflect on the implications of a Yogācāra analysis of experience and of what we know about illusion for first person methodologies.

### **The Role of Mind in Quantum Physics**

*Arthur Zajonc*

In the worldview of classical physics, the universe and all the things in it exist completely independently of the mind. Indeed, there is little role for the mind at all in classical physics. Reality is conceived as made up of material objects, each of which possesses a small number of primary attributes (length, mass, etc.). In relativity and quantum theory this view is called into question and shown to be false. The role of the observer is irreducibly present and is required for the observation of any attribute. Objects only have attributes in relationship to reference frames and measurement apparatus. They do not possess attributes in themselves. Using the delayed-choice experiment as an example, I will argue that the nature of a photon or electron as wave or particle is completely ambiguous or undetermined until the final act of measurement. But measurement itself, which is an act of consciousness, is not understood. The puzzling role that consciousness plays in modern physics is nowhere more problematic than here, in the problem of measurement. How can a mental act create reality? I will review the various positions on the importance and place of mind in modern physics, and the implications for our understanding of ourselves and our world.

## Presentation Abstracts (Day 1)

### Mathematics in Comparison with Art: Looking for Applications, Truth or Beauty?

*Shigefumi Mori*

While mathematics is considered to be the basic language for science and technology, people might not recognize that mathematicians are still in the process of developing mathematics by solving problems and creating theories. In this presentation, I would like to describe mathematicians' research activities from a few different viewpoints. Though mathematics is useful in various aspects of life, decades and even centuries can pass between an original discovery in pure mathematics and its recognizable application in everyday life. It is also true that an application often emerges in a totally unexpected direction, having significant influence on science and technology. Therefore a mathematician's academic curiosity is often the best compass in making a discovery that can be the origin of an important application. Research in mathematics is considered to be quite different from research in other academic disciplines. However, a mathematician's attitude toward the object of his/her interest is often similar to those in other disciplines, including art. In my own work, I have found certain similarities between algebraic geometry and modern paintings; I will explore these in the present talk.

## Presentation Abstracts (Day 2)

### Cultural Neuroscience: Connecting Culture, Brain, and Genes

*Shinobu Kitayama*

Cultural neuroscience is an emerging field of research that examines the interdependencies among culture, brain, and genes, with the ultimate goal of elucidating how the mind functions in varying socio-cultural contexts. By investigating both brain plasticity and genetic variability in differing societies and cultures, it seeks to overcome the nature-nurture dichotomy that has plagued social and behavioral sciences for so long. In the present talk, after a brief overview of the field, I will illustrate its potential by reviewing evidence for cultural variations in brain mechanisms underlying cognition (e.g., holistic attention), emotion (e.g., emotion regulation), and motivation (e.g., choice rationalization). Further, I will report our recent evidence on a gene x culture interaction effect in acquisition of cultural values. A well-validated cultural difference in independent vs. interdependent social orientation is much more pronounced for members of different cultures who carry dopamine receptor gene variants linked to high dopamine signaling capacity compared to non-carriers of such gene variants. Directions for future research will be discussed.

### A Process-based Map of Compassion and its Implications on Compassion Training

*Joan Halifax*

Compassion is considered to be the capacity to attend to the experience of others, to feel concern for others, to sense what will serve others, and potentially to be able to be of service. Compassion has been more simply defined as "the emotion one experiences when feeling concern for another's suffering and desiring to enhance that person's welfare." Put another way, compassion is considered to have two main valences: the affective feeling of caring for one who is suffering, and the motivation to relieve that suffering. This is a conventional view of compassion and might not take into account a more nuanced perspective. This presentation explores a systems-based map of compassion that is nonlinear, context sensitive, practical, and amenable to training. This process-oriented map, developed initially for training medical professionals, characterizes compassion as an emergent process primed by non-compassion elements, including attention and affect, intention and insight, and embodiment and engagement. The map draws on neuroscience, social psychology, ethics, and contemplative perspectives. It is believed that this process-oriented map has the potential for impacting the training of compassion in clinicians as well as educators and others who engage in relationship-based service endeavors. The presentation will also explore a unique intervention that can be used to cultivate compassion in the course of interpersonal interactions.





## Presentation Abstracts (Day 2)

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### **Implicit Mind, Sympathy, and Shared Reality**

*Shinsuke Shimojo*

There are certain socio-political problems that are unique to the modern, or so-called the First World, and are hard to resolve: war, poverty, crime, and depression, just to name a few. There are also certain aspects of the human mind that traditional “scientific” psychology and neuroscience have difficulty addressing (emotion, decision making, consciousness, and again depression, for example). Interestingly, these two sets of “new, hard problems” have some common features. Specifically, they are highly context-dependent and unpredictable. Neuropeptides such as oxytocin may provide a good example of such context-dependency. Reductionist scientists argue that oxytocin is a kind of “love hormone” which mechanically increases nursing and affiliative behavior. However, recent research shows that this is true only within an individual’s social group. The same chemical tends to trigger aggressive behavior against outsiders. Likewise, an individual’s personality and emotional decision-making should be understood in such a dynamic social context. In these cases, one needs to pay attention to the dynamic interactions between brain and the (social) world, via the body. Implicit mental processes plays a key role here. Can we understand social interactions at a more implicit somatic level, to strategically boost mutual liking and positive relationships? To this end, I will report our new findings on “implicit bodily movement synchrony” and “inter-brain neural synchrony.” Such interactions provide a behavioral and neural basis to establish “shared reality.” Facing various conflicts after the March 11 Fukushima Daiichi nuclear disaster in Japan, we need a more profound understanding of these implicit aspects of mind.

### **Emotional Plasticity: A Healthy Society**

*Barry Kerzin*

Our high-stress busy lives are out of control. Our emotions have gone wild. Anger is on the rise. Jealousy, aggressive competition, and judgmental attitudes feed on anger. Burnout runs rampant. Depression, loneliness, and suicide fill the gap. Inner calm and peace lay dormant. Honesty is out of favor. Personal and societal transparency is lacking. Corruption is rising. Trust and genuine friendship are waning. Mind training can help reverse this trend. Cultivating honesty, trust, and concern for others brings an inner joy and sense of well-being. Mindfulness keeps tabs on our emotions. Thus ethics education is vital to a healthy society. Secular ethics has universal appeal as it is based on scientific research and not blind faith. Research now demonstrates that ethical lives lead to good physical and mental health. Mapping the mind reveals our various emotions and their plasticity. This talk will catalogue various emotions within the Buddhist framework of the 6 primary and 51 secondary minds, with an emphasis on positive transformation.

## Presentation Abstracts (Day 2)

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### **Mapping the Mind of Children and Creating a Positive School Environment: Evidence-Based Practice in Psychology**

*Junko Tanaka-Matsumi*

Mapping children’s minds involves context-specific assessment of children and those who interact with them, and not in isolation from their socio-cultural environment. This presentation will focus on evidence-based practice in the everyday environment of children as they interact with peers, teachers, and their families. Currently, approximately 6.5% of school children in Japan are reported to exhibit problems in attending classes and learning in regular classrooms. Some have developmental disorders and others might simply exhibit excessively inappropriate behaviors due to malfunctioning behavioral contingencies. Such behavioral and learning problems have prompted educators and psychologists to create reliable psychological assessments, design appropriate interventions, monitor children’s progress, evaluate effectiveness in a naturalistic environment, and test for generalization of effectiveness in other relevant environments. The intervention involves training in self-management and self-control where children learn to monitor their own mind, initially starting with specific behaviors. Reinforcement of positive behaviors in children will increase their self-esteem and encourage positive peer interactions. Creating a positive responsive environment will enhance communication and nurture contemplative practice at home and in schools.

### **How Close Can Computers Get to Human Beings?**

*Makoto Nagao*

The function of mind is best mapped or revealed in conversation. It includes not only facts and knowledge, but also feelings and emotions within a speaker’s mind. There has been a great deal of research on and development of humanoid robots in Japan, particularly for elderly people and hospitalized patients. In these cases, it will be essential to develop a conversation or dialogue system between robots and people. An important capability for the robot in this process is deduction and inference from people’s demands in order to generate proper answers. However, human beings often express their wishes and demands in indirect or implicit ways, using vague or partial expressions. Therefore, robots need strong inferential power within dialogue contexts, as well as specific information on the speaker’s personal history, health, and relationships. Moreover, it is essential that robots can extract feelings and emotions from an utterance, and compose an appropriate reply that will also provide comfort. One aim of this process is to foster gratitude and trust in the human dialogue partner. To stimulate research in these areas of dialogue system construction, we must organize a cooperative research group of information scientists, linguists and psychologists. The development of such robot dialogue systems will not only help and comfort aged persons and hospitalized patients, but will also lead to the clarification of how the mind reacts to external stimuli, thus furthering our understanding of mental function. This talk will discuss robot dialogue research as a new way to understand the mind in a functional way, compared to the traditional arguments in metaphysics and the practice of contemplative training to control one’s mind.

## Participants' Biographies



**Tenzin Gyatso, the 14th Dalai Lama**, is the leader of Tibetan Buddhism and a spiritual leader revered worldwide. He was born on July 6, 1935, in a small village called Taktser in northeastern Tibet. Born to a peasant family, he was recognized at the age of two, in accordance with Tibetan tradition, as the reincarnation of his predecessor, the 13th Dalai Lama. The Dalai Lamas are manifestations of the Buddha of Compassion, who choose to reincarnate for the purpose of serving human beings. Winner of the Nobel Prize for Peace in 1989, he is universally respected as a spokesman for the compassionate and peaceful resolution of human conflict. He has traveled extensively, speaking on subjects including universal responsibility, love, compassion and kindness. Less well known is his intense personal interest in the sciences; he has said that if he were not a monk, he would have liked to be an engineer. As a youth in Lhasa it was he who was called on to fix broken machinery in the Potala Palace, be it a clock or a car. He has a vigorous interest in learning the newest developments in science, and brings to bear both a voice for the humanistic implications of the findings, and a high degree of intuitive methodological sophistication. His Holiness is the honorary Chairman of the Mind & Life Institute, and has been central to the development of the organization for over 25 years.



**Richard J. Davidson, PhD**, is the founder and chair of the Center for Investigating Healthy Minds at the Waisman Center, and the director of the Laboratory for Affective Neuroscience and the Waisman Laboratory for Brain Imaging and Behavior, both at the University of Wisconsin, Madison. He was educated at New York University and Harvard University, where he received his BA and PhD, respectively, in psychology. Over the course of his research career he has focused on the relationship between brain and emotion. He is currently the William James Professor and Vilas Research Professor of Psychology and Psychiatry at the University of Wisconsin. He is co-author or editor of thirteen books, including *Visions of Compassion: Western Scientists and Tibetan Buddhists Examine Human Nature*, *The Handbook of Affective Science*, and *The Emotional Life of Your Brain*. Professor Davidson has published more than 300 chapters and journal articles, and is the recipient of numerous prestigious awards for his work, including the Research Scientist Award from the National Institute of Mental Health, the Distinguished Scientific Contribution Award from the American Psychological Association and election to the American Academy of Arts and Sciences. He has served on the Board of Directors for the Mind & Life Institute since 1992. In 2006, he was named "one of the 100 most influential people in the world" by Time Magazine, and that same year he received the first Mani Bhaumik Award from UCLA for advances in the understanding of the brain and the conscious mind in healing.



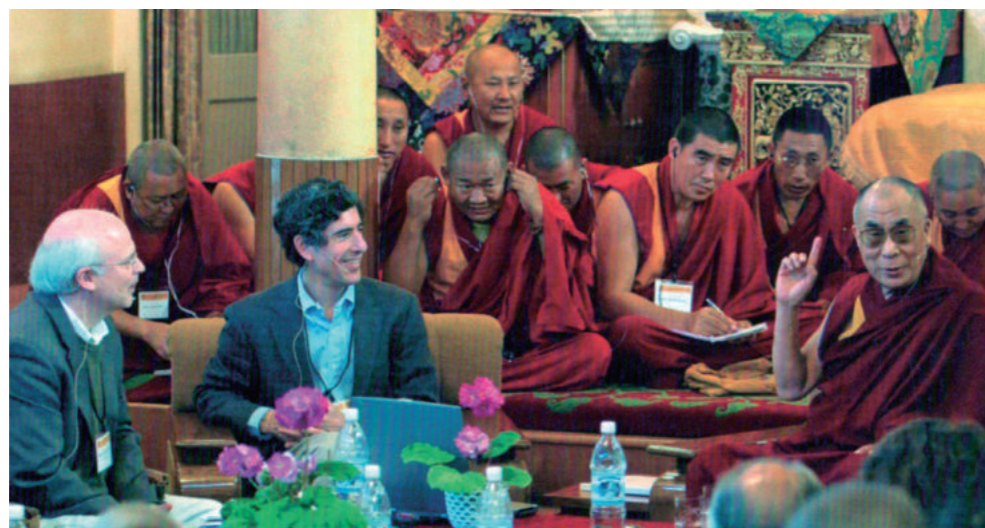
## Participants' Biographies



**Jay L. Garfield, PhD**, is Kwan Im Thong Hood Cho Temple Professor of Humanities at Yale-NUS College, Doris Silbert Professor in the Humanities at Smith College, and Professor of Philosophy at the National University of Singapore, Yale University, the University of Melbourne and the Central University of Tibetan Studies. His research addresses topics in Madhyamaka and Yogācāra Buddhist philosophy, cognitive science, logic, ethics and cross-cultural interpretation. His most recent books include *Western Idealism and Its Critics*, *Buddhist Philosophy: Essential Readings* and *The Oxford Handbook of World Philosophy*.



**Joan Halifax, PhD**, a pioneer in the end-of-life care field, is Founder and Abbot of Upaya Institute and Zen Center, Santa Fe, New Mexico. She received her PhD in medical anthropology in 1973 and has lectured on the subject of death and dying at academic and medical institutions around the world. She is the recipient of a National Science Foundation Fellowship in Visual Anthropology, was appointed an Honorary Research Fellow in Medical Ethnobotany at Harvard University, and was a Distinguished Visiting Scholar at the Library of Congress. She worked at the Maryland Psychiatric Research Center with dying cancer patients in the early 1970's, and has continued to work with dying people and to teach health care professionals the psycho-social, ethical and spiritual aspects of care of the dying. Her work for many decades has focused on applied Buddhism. In addition to journal articles and book chapters, her books include: *The Human Encounter with Death (with Stanislov Grof)*, *The Fruitful Darkness*, *Simplicity in the Complex: A Buddhist Life in America*, and *Being with Dying: Cultivating Compassion and Wisdom in the Presence of Death*. Joan is a board member and fellow of the Mind & Life Institute, a Lindisfarne Fellow, and Founding Teacher of the Zen Peacemaker Order, and Founder of the Prajna Mountain Buddhist Order.



## Participants' Biographies



**Yoshiro Imaeda, PhD**, was born in 1947 in Japan, and studied the history of Buddhism at Otani University, Kyoto. In 1969 with the scholarship of the French government, he went to Paris to pursue his research on Tibetan Buddhism at the Collège de France with R.A. Stein and École Pratique des Hautes Études (EPHE) with A. Macdonald. He received his PhD (Doctorat d'Etat) at the Université de Paris VII, where his dissertation was on the medieval history of Bhutan. He worked at the National Center for Scientific Research (CNRS), Paris from 1974 until his retirement in 2012. He also had the privilege of working as advisor to the National Library of Bhutan for ten years from 1981 through 1990. This function gave him a unique opportunity to closely work with Lopon Pemala who was then director of the National Library and one of the most eminent monk-scholars. He thus acquired a deep insight into the people, living culture and beliefs of the tiny Himalayan kingdom, which is the last fortress of Tibetan Buddhism. He has taught and lectured at different universities and institutions including the University of California, Berkeley, Research Institute for Languages and Cultures of Asia and Africa, Tokyo University for Foreign Studies. He has published many books and articles in French, English and Japanese. The most recent ones in English are *Enchanted by Bhutan* and *The Successors of Zhabdrung Ngawang Namgyel: Hereditary Heirs and Reincarnations*.



**Atsushi Iriki, PhD**, received his degree in Neuroscience from Tokyo Medical and Dental University in 1986. He held research associate positions at the Tokyo Medical and Dental University and then at The Rockefeller University (USA). He joined the faculty of Toho University Medical School as an assistant professor and then as an associate professor in Physiology (1991-1999). In 1999, he returned to Tokyo Medical and Dental University as a full professor and chairman in Cognitive Neurobiology. Since 2004, He has headed the Laboratory for Symbolic Cognitive Development at the RIKEN Brain Science Institute. He is currently Lee Wee Nam visiting professor of Nanyang Technological University (Singapore), a visiting professor of University College London (UK), an adjunct professor of Keio University, and a specially appointed professor of Kyoto University. Currently, he is trying to uncover evolutionary precursors of human higher cognitive functions grounded on physical morphologies and patterns of structured bodily actions, through behavioral and neurophysiological measures in macaque monkeys. His long-term goal is to shed light on the neurobiological mechanisms underlying evolution of human intelligence.

## Participants' Biographies



**Thupten Jinpa, PhD**, was trained as a monk at the Shartse College of Ganden Monastic University, South India, where he received the Geshe Lharam degree. In addition, Jinpa holds a BA in philosophy and a PhD in religious studies, both from Cambridge University. He taught at Ganden monastery and worked as a research fellow in Eastern religions at Girton College, Cambridge University. Jinpa has been the principal English translator to His Holiness the Dalai Lama since 1985 and has translated and edited numerous books by the Dalai Lama, including the New York Times Bestsellers *Ethics for the New Millennium* and *The Art of Happiness*, as well as *Beyond Religion*, *Universe in a Single Atom*, and *Transforming the Mind*. In addition to numerous works in Tibetan, his own publications include *Essential Mind Training*, *Wisdom of the Kadam Masters*, and *Self, Reality and Reason in Tibetan Philosophy: Tsongkhapa's Quest for the Middle View*, as well as translations of major Tibetan works featured in The Library of Tibetan Classics series. He is the main author of Compassion Cultivation Training, an eight-week formal program developed at the Center for Compassion and Altruism Research and Education at Stanford University. Jinpa is an adjunct professor at the Faculty of Religious Studies at McGill University in Montreal, the founder and president of the Institute of Tibetan Classics in Montreal, and the general series editor of its The Library of Tibetan Classics series. He has been a core member of the Mind & Life Institute from its inception, and since January 2012, the chairman of its board of directors.



**Barry Kerzin, MD**, received his BA degree in Philosophy from the University of California at Berkeley, and his MD degree from the University of Southern California. He was an assistant professor of Family Medicine at the University of Washington, a visiting professor at both Central University of Tibetan Studies in Varanasi, India, and Hong Kong University. Barry has lived in Dharamsala, India, for 24 years serving as a doctor to His Holiness the Dalai Lama, where he also provides charitable medical care to the poor. Having done many meditation retreats including a three-year retreat, his brain was studied as part of research on long-term meditators at the University of Wisconsin, Madison, and Princeton University. Barry was ordained as a Buddhist monk by His Holiness the Dalai Lama. He continues to be a diplomat in the American Board of Family Medicine and a fellow in the American Academy of Family Practice. Barry consults for research on training compassion at the Max Planck Institute in Leipzig. He is founder and chairman of the Human Values Institute in Japan. Barry teaches compassion and secular ethics in medical schools and universities internationally, including a TEDx talk on happiness. He has authored many articles and book chapters in English, Hindi, Japanese, Russian, and Chinese.

## Participants' Biographies



**Shinobu Kitayama, PhD**, is originally from Japan and received his PhD from the University of Michigan, where he is currently Robert B. Zajonc Collegiate Professor of Psychology and the director of the Center for Culture, Mind, and the Brain. He also directs the Culture and Cognition Program. His research focuses on cultural variations in the self. He has examined how cultural construals of the self may give rise to different modes of cognition, emotion, and motivation. In recent years, he has used functional magnetic resonance imaging (fMRI) and electroencephalogram (EEG) to investigate the nature of dynamic, recursive interactions between culture and the brain. He has also investigated how genetic influences may be modified by socio-cultural contexts. Before his current position, he also taught at the University of Oregon, Kyoto University, and the University of Chicago. He was selected to be a Fellow at the Center for Advanced Studies in Behavioral Sciences twice (1995-1996, 2007-2008), and was a recent recipient of a Guggenheim Fellowship (2010-2011). He was inducted to the American Academy of Arts and Sciences in 2012.



**Shigefumi Mori, PhD**, received his degree in 1978 from Kyoto University under Professor Masayoshi Nagata. He became an assistant at Kyoto University in 1975, an assistant professor at Harvard University (1977-1980), and a lecturer at Nagoya University in 1980. He visited Harvard University, IAS Princeton, Columbia University and several other institutions until he became a professor at Nagoya University in 1988. In 1990, he moved to RIMS, Kyoto University, where he has been Professor and he also served as Director (2011-2013). He has also been Member of Japan Academy since 1999. He received the Frank Nelson Cole Prize, Japan Academy Prize, Fields Prize, Person of Cultural Merits of Japanese Government, and Fujiwara Award, and University Professor of Nagoya University, among others. He was member of the Executive Committee of IMU (1995-1998), member of General Committee of ICSU (1996-1998), and vice president of IMU (1999-2002). His field of research is algebraic geometry, especially higher dimensional birational geometry. His achievements include the affirmative solutions of Hartshorne and Frankel Conjectures, and establishment of the minimal model program for threefolds.



## Participants' Biographies

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**Makoto Nagao, PhD**, was born on October 4, 1936. He graduated from Kyoto University, Department of Electrical Engineering in 1959, and obtained MS and PhD degrees from the university. After having been successively assistant then associate professor, he became professor in 1973 at Kyoto University. He was the president of Kyoto University (1997-2003), the Director of the National Institute of Information and Communication Technologies (2004-2007), and the president of National Diet (Congress) Library (2007-2012). He has served as the president of the Institute of Electronics, Information and Communication Engineers of Japan (1998-1999), the Information Processing Society of Japan (1999-2000) and several other academic societies in Japan. He founded and assumed the first presidency of the International Association for Machine Translation (IAMT) in 1991, and the Natural Language Processing Society of Japan in 1994. He has obtained numerous awards including the IEEE Emanuel R. Piore Award, the Medal of Honor of the International Association of Machine Translation, the Lifetime Achievement Award of ACL, the Honorary Doctorate of the University of Nottingham, the title of Chevalier de la Légion d'Honneur from French President, the Japan Prize, the title of Person of Cultural Merit from Japanese Government. The areas of his research activities concern pattern recognition, image processing, natural language processing, machine translation, digital library and artificial intelligence in general. He has pioneered the development human face recognition and practical machine translation systems. He proposed a new machine translation principle called example-based machine translation in 1984, which is now used throughout the world, and developed the world's first practical digital library 1994.



**Shinsuke Shimojo, PhD**, received his degree from MIT in 1985, and is currently the Gertrude Baltimore Professor of Experimental Psychology in Division of Biology / Computation & Neural Systems at the California Institute of Technology. The Shimojo Laboratory has been devoted to tackling the issue of how the human brain enables us to perceive objects and respond to them adaptively. Using visual illusions, adaptation and aftereffects, he and his colleagues have developed new psychophysical and cognitive neuroscientific techniques for enhancing our understanding of higher-order visual perception, spatial attention, integration across different sensory modalities, and sensory-motor functions. Shimojo also has more than 150 publications in prestigious journals including *Nature*, *Science*, *Nature Neuroscience*, *Neuron*, and *Proceedings of National Academy of Science*. The latest findings from his laboratory indicate the importance of implicit cognitive and emotional processes in vision, multimodal perception, and decision-making. Among his many awards, in 2004 he received the Japanese Neuroscience Society Tokizane Memorial Award for his discovery of new perceptual phenomena and underlying neural mechanisms related to visual contours and surfaces. He also received the Most Innovating Research Award from the Japanese Society of Cognitive Science in 2008 for his work on counter-intuitiveness of Bayesian inference. For his series of books for non-expert general readers, he received the Suntory Prize for Publications in Humanity and Social Sciences. He has also been well known for other types of outreach, such as collaborations with artists in science museum exhibitions, and writing as a science columnist at Asahi digital RONZA.

## Participants' Biographies

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**Junko Tanaka-Matsumi, PhD**, is Dean of School of Humanities and Professor in the Department of Integrated Psychological Sciences at Kwansei Gakuin University in Nishinomiya-City, Japan. She is also a Professor Emerita of Psychology at Hofstra University, Hempstead, New York, where she taught clinical psychology for 20 years until 2000. Tanaka-Matsumi received her PhD in clinical psychology from the University of Hawaii at Manoa. She was an East-West Center (Honolulu) graduate scholarship student from Japan and trained in cross-cultural psychology. She is a Fellow of the American Psychological Association, an Associate Editor of the *Journal of Cross-Cultural Psychology* and serves on the editorial boards of *International Perspectives in Psychology: Research, Practice, Consultation*; *Asian Journal of Social Psychology*; *Japanese Journal of Behavior Therapy*; and *Japanese Journal of Behavior Analysis*. Tanaka-Matsumi studies the relationships between culture and psychopathology, culture and personality, functional analytic approaches to cross-cultural behavior therapy, and is engaged in school-based research and consultation projects to promote children's classroom adjustment and learning. She trains her students directly in naturalistic environments to promote evidence-based practice in psychology.



**Arthur Zajonc, PhD**, was professor of physics at Amherst College from 1978 to 2012, when he became President of the Mind & Life Institute. His research has included studies in electron-atom physics, parity violation in atoms, quantum optics, the experimental foundations of quantum physics, and the relationship between science, the humanities and the contemplative traditions. He has written extensively on Goethe's science work. He is author of the book: *Catching the Light*, co-author of *The Quantum Challenge*, and co-editor of *Goethe's Way of Science*. In 1997, he served as scientific coordinator for the Mind and Life dialogue published as *The New Physics and Cosmology: Dialogues with the Dalai Lama*. He organized the 2002 dialogue with the Dalai Lama, "The Nature of Matter, the Nature of Life," and acted as moderator at MIT for the "Investigating the Mind" Mind and Life dialogue in 2003, the proceedings of which were published under the title *The Dalai Lama at MIT*. While directing the Center for Contemplative Mind in Society, Arthur fostered the use of contemplative practice in college and university classrooms, and he continues to speak around the world on the importance of contemplative pedagogy. Out of this work and his long-standing meditative practice, Zajonc has most recently authored *Meditation as Contemplative Inquiry: When Knowing Becomes Love*. He has also been General Secretary of the Anthroposophical Society in America, a co-founder of the Kira Institute, president of the Lindisfarne Association, and a senior program director at the Fetzer Institute.

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