



MIND & LIFE INSTITUTE

2008 MIND & LIFE SUMMER RESEARCH INSTITUTE

The Role of
Mental Training
in
Investigating the
Mind



GARRISON INSTITUTE, GARRISON, NEW YORK

June 6-12, 2008
Program Information and
Faculty Biographies



Dear Faculty, Senior Investigators, Research Fellows, Mind and Life Board Members, Sponsors, and Guests,

On behalf of the Mind and Life Institute, I am delighted to welcome you to the 2008 Mind and Life Summer Research Institute (MLSRI). As we embark on this, our 5th annual MLSRI, we bring together a truly diverse and international group of scientists, clinicians, scholars, contemplative practitioners and teachers from almost every continent. We look forward to a lively, enriching and, of course, educational, week together.

For several years we have been speaking about catalyzing a new field of science called Contemplative Neuroscience, which reflects the scientific roots established by Francisco Varela and carried forward by Richard Davidson. This year we will continue to broaden our focus to give equal emphasis to Contemplative Clinical Science and Contemplative Studies. This more balanced approach is a direct result of what has been emerging from your work and participation at the MLSRI.



I especially want to thank the other members of this year's MLSRI Planning Committee—Co-Chairs, John Dunne, Al Kaszniak and Evan Thompson; and Richard Davidson, David Meyer, Amishi Jha, Joan Halifax Roshi, Sharon Salzberg, Linda Carlson, David Vago and Robert Roeser. Without their untiring contributions of time and expertise in planning the offerings of this year's Institute, we would not be able to offer such an exciting and abundant schedule for the week—we sincerely hope you benefit from their generosity.

We also extend our gratitude to the John Templeton Foundation; Hershey Family Foundation; the Lostand Foundation; the Mental Insight Foundation and several anonymous donors, whose generosity have made this year's MLSRI a reality. A deep bow of gratitude as well to Diana and Jonathan Rose and all our friends and colleagues of the Garrison Institute, who have made Garrison the perfect home for the MLSRI.

We are deeply indebted to our Faculty, some of whom have traveled great distances and at their own expense, to share their experience and wisdom with you. Without such an enthusiastic and stellar faculty, MLSRI would not be possible.

Mostly, we want to thank all of our Research Fellows and Senior Investigators. It is for you that the MLSRI exists and we strive to make this a rewarding and memorable learning experience for each and every one of you. We are honored by your willingness to devote a week of your summer to this exploration and sincerely hope that you will leave here not only with increased knowledge, but with deeper insights and new relationships to assist you in your research efforts in these new and exciting fields.

Warmest regards,

Adam Engle
Chairman & CEO
Mind and Life Institute

The 2008 Mind and Life Summer Research Institute, June 6-12, 2008

The purpose of the Mind and Life Summer Research Institute is to advance collaborative research based on a process of inquiry and dialogue among behavioral scientists, neuroscientists, biomedical researchers, contemplative scholars from philosophy, religion, and the humanities, as well as contemplative practitioners and teachers. The long-term objective is to advance the training of a new generation of behavioral scientists, cognitive/affective neuroscientists, clinicians, and contemplative scholar/practitioners interested in exploring the potential influences of meditation and other contemplative practices on mind, behavior, brain function, health and well-being. This includes examining the potential role of contemplative methods for characterizing human experience and consciousness from a neuroscience perspective.

The 2008 Summer Research Institute will be devoted to the theme of attention and emotion regulation. It will bring together researchers in basic science, clinical science, contemplative scholarship and philosophy, and contemplative practice to investigate the relation between attentional processes and emotional self-regulation.

In recent years, emotional self-regulation and attention have emerged as central themes in psychology (clinical and developmental) and neuroscience (affective and cognitive), yet little work has been done to link findings about attention in cognitive psychology and neuroscience to findings about emotional self-regulation in clinical and developmental psychology and affective neuroscience. This gap reflects a longstanding separation of cognition and emotion in the brain and cognitive sciences -- one that has become increasingly untenable.

Contemplative mental training, including the psychological and philosophical theories of mental functioning that inform this training, open new avenues for investigating the complex relations among emotion, attention, meta-cognition, cognitive appraisal, affect and feeling, and the voluntary self-regulation of mental states. Contemplative practice not only offers new psychological phenomena for scientific investigation, but as importantly provides new resources for advancing scientific theories and models of cognitive and emotional functioning and subjective experience.

Through scientific, contemplative, and philosophical presentations, as well as intensive group discussions, the 2008 Mind and Life Summer Research Institute aims to break new ground in our understanding of attention and emotion regulation while fostering collaborative research in the emerging fields of contemplative neuroscience, contemplative clinical science, and humanistic contemplative studies.

The scientific emphasis will include developing rigorous experimental designs to evaluate both state and trait effects of contemplative practice, clinical trials methodology for evaluating the impact of meditative-based interventions, and potential experimental designs for incorporating "first-person" contemplative methods into cognitive/affective neuroscience research on consciousness. We will encourage the active collaboration of scientists, contemplative scholars and contemplative practitioners in all phases of research. Examples of findings from such collaborations will be provided.

The specific goals of the Summer Research Institute are:

- 1) to cultivate strategic dialogue between experimental psychologists, neuroscientists, cognitive scientists on the one hand, and contemplative scholar/practitioners and philosophers on the other, in order to develop research protocols to enhance investigation of human mental activity;
- 2) to foster a cadre of nascent scientists (graduate students and post-docs) and contemplative scholars and philosophers to participate in the development of the next generation interested in innovation at the mind-brain interface;
- 3) to advance a collaborative research program to study the influence of contemplative practices on mind, behavior, and brain function, by informed use of highly trained subjects in human neuroscience protocols;
- 4) to explore ways in which the first-person examination of mental phenomena, by means of refining attention and related skills, may be raised to a level of rigor comparable to the third-person methodologies of the cognitive sciences; and
- 5) to catalyze the creation and development of three new scientific and academic disciplines: Contemplative Neuroscience; Contemplative Clinical Science and Contemplative Studies.

Some of the possible themes that may be addressed include:

- Functional neuroimaging research on relations between changes in subjective experience during meditation and alterations in brain function.
- Neuroplasticity and its implications for understanding transformations in brain and behavior as a function of development, including the impact of educational methods, with a focus on certain critical issues in developmental psychology.
- Fundamentals of clinical intervention research to study comparative outcomes of meditation-based interventions, as well as to investigate the causal agency of contemplative practices in reducing suffering and promoting health.
- Integration of first-person methods in research on brain function, meditation, and consciousness.
- Affective and cognitive trait effects of meditation and methods to interrogate these changes in brain and behavior.
- Longitudinal research with meditation practitioners.
- Epistemological and methodological issues about introspection and meta-cognition, as seen from the perspectives of Buddhist and other contemplative psychology and modern cognitive science.
- Issues in the professional development of meditation researchers including: how to write a successful grant; what types of professional positions are especially amenable to conducting meditation research; optimal ways to combine one's own personal contemplative practice with meditation research; and other aspects of professional development.

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2008 Mind and Life Summer Research Institute

June 6 – June 12, 2008 — Daily Schedule

Begin	End	Event Description
Friday, June 6		
Arrival and Orientation		
2:00 PM	6:00 PM	Registration and Check-In
6:00 PM	7:15 PM	Dinner with Faculty: an opportunity to meet the MLSRI faculty and participants
7:15 PM	7:30 PM	Break
7:30 PM	10:00 PM	Opening Session and Orientation:
<ul style="list-style-type: none"> ■ Welcome Remarks from R. Adam Engle, Mind and Life Chairman and CEO ■ Garrison Institute Welcome and Orientation: Rob Gabriele, Garrison Institute Managing Director ■ Introduction to Buddhism: John Dunne and Anne Klein 		
<p>Preparing for issues to be discussed on Monday, this session is designed for participants who have little or no knowledge of Buddhism. The aim is to provide a basic overview that focuses especially, but not exclusively, on the role of contemplative practice and its larger cultural and historical contexts.</p>		
<ul style="list-style-type: none"> ■ Introductory Meditation led by Joan Halifax, Roshi and Sharon Salzberg 		
10:00 PM	8:00 AM	Silence through Morning Meditation

Saturday, June 7

6:00 AM	7:00 AM	Yoga [in Lower Auditorium – basement level]
7:00 AM	8:00 AM	Meditation [Silence maintained through morning meditation]
8:00 AM	8:45 AM	BREAKFAST
Morning plenary sessions re attention and emotion in cognitive neuroscience and Buddhist phenomenology and epistemology		
8:45 AM	9:00 AM	Introduction of Mind and Life Summer Research Institute Faculty
9:00 AM	10:00 AM	John Dunne, Ph.D. and David E. Meyer, Ph.D.: Human Attention and the Attention-Emotion Interface in Buddhist Contemplative Theory, Psychological Science, and Cognitive Neuroscience.
<ul style="list-style-type: none"> ■ This combined session presents the central features of attention according to both Buddhist contemplative theory and contemporary science in a manner that highlights key parallels and divergences between the theoretical systems as well as the relevance of emotion to attention. We will examine theories on the processes that constitute attention, and we will discuss the way that these processes are embedded in the larger cognitive-affective context of any mental event. The role that various contemplative techniques can play in enhancing attention will also be presented, along with the unique role played by meta-cognitive awareness in the regulation of attention according to Buddhist contemplative theory. From the Buddhist perspective, we will likewise examine the degree to which the cognitive/affective distinction is useful. 		
10:00 AM	10:15 AM	Break
10:15 AM	10:45 AM	Georges Dreyfus, Ph.D.: Attention and the Regulation of Ethically Relevant Mental States: An Abhidharmic View.
<ul style="list-style-type: none"> ■ Attention and emotion regulation are a central concern for both cognitive science and Buddhism. In Buddhist practice, attention training is essential to develop ethically healthy mental states. I examine this issue from the Abhidharma perspective. The Abhidharma does not recognize any category similar to what we describe as emotion. This raises challenges for cognitive-science conceptualizations of the mind and suggests we need to distinguish between various kinds of emotion and rethink what “emotion regulation” means. The Abhidharma also contains important reflections on the nature of attention, ones not taken into sufficient consideration in current discussions of mindfulness. I explain some of the subtle distinctions Abhidharma makes between the various dimensions of attention, focusing particularly on the nature of mindfulness. These explanations clarify the role attention plays in regulating ethically relevant states and indicate new questions and directions for research. 		
10:45 AM	11:15 AM	Luiz Pessoa, Ph.D.: Affective Vision: Dynamic Attention-dependence of Emotion Perception.
<ul style="list-style-type: none"> ■ In cognitive and affective neuroscience, the processing of emotion-laden information is often described as “automatic,” namely, independent of attention and even visual awareness. In the past years, we have sought to carefully test this idea with both behavioral and fMRI methods. Our findings do not favor the “automaticity” assumption and reveal instead that both attention and task relevance strongly modulate brain responses evoked by emotional faces. Recently, we have also investigated the neural correlates of near-threshold emotional perception. Unlike previous studies, we did not find evidence 		

for differential brain responses when participants were unaware of the emotional stimuli – this was the case even in the amygdala. Collectively, these studies show that while emotional stimuli may comprise a privileged stimulus category, their processing is highly dynamic and depends on the interplay of a host of factors that sculpt the associated neural responses, including task context, attention, awareness, and perceptual interpretation.

11:15 AM	12:00 PM	Panel Response to Audience Questions with Luiz Pessoa, Georges Dreyfus, David Meyer, Philip Zelazo, John Dunne and Sharon Salzberg [Moderated by Anne Klein]
<ul style="list-style-type: none"> ■ Driven by audience questions, this dialogue panel will discuss issues arising from the morning presentations on attention and emotion as seen from the perspectives of cognitive neuroscience and Buddhist theory. 		
12:00 PM	1:00 PM	LUNCH
1:00 PM	1:30 PM	Free Time
Afternoon plenary sessions re neurophenomenological perspectives on attention and emotion		
1:30 PM	2:00 PM	Evan Thompson, Ph.D.: Self, Attention, and the Resting State: A Neurophenomenological Approach.
<ul style="list-style-type: none"> ■ Studies of spontaneous brain activity in task-free conditions (the “resting state”) show the waking brain is always active in organized, self-generated ways. This “default mode” activity seems closely related to the sense of self. Yet “resting state” and “self” remain ill-defined. The resting state is defined negatively by the absence of task instructions. Most likely this means people think about whatever they tend habitually to think about, so the precise mental processes and their timing remain unknown. How much of the observed intrinsic activity reflects unconstrained, self-related thinking (mind wandering)? How much reflects embodied self-awareness in the present moment? I make the following “neurophenomenological” proposal: Individuals who can switch flexibly and reliably between various modes of attention and awareness, including nonintrusive monitoring their moment-to-moment experience, can modulate the resting state in revealing ways and provide phenomenological information about its features. This phenomenological perspective provides a necessary complement to neurodynamical research. 		
2:00 PM	2:30 PM	Michel Bitbol, Ph.D., M.D.: How to Dissolve the ‘Hard Problem’ of Consciousness: Neurophenomenology as a Stance.
<ul style="list-style-type: none"> ■ Varela proposed to tackle the “hard problem” of consciousness not with more theoretical reflection and experimental work, but with a radical change of stance regarding objectivity and subjectivity. I argue in support that (i) the problem of the emergence of consciousness from matter is ill-posed, and (ii) attempts to prove consciousness is ontologically secondary to matter fail to recognize the existential and methodological primacy of consciousness. Varela’s neurophenomenology involves a descent to the common ground of phenomenology and objective science, namely, a quest for intersubjective coherence. Neurophenomenology also redefines the boundary between unquestioned assumptions and relevant questions. Focusing on the relations between the lived body and the objectified body, instead of the classical mind-body problem, is crucial to this redefinition. New questions arise, however, about the phenomenal quality of attention to one’s own lived body, and whether this reflective attention can be reshaped by knowledge about the objectified body. 		
2:30 PM	2:45 PM	Break
2:45 PM	4:30 PM	Panel Discussion driven by audience questions with Luiz Pessoa, Georges Dreyfus, Michel Bitbol, Anne Klein, Evan Thompson, Barry Kerzin [Moderated by Amishi Jha]
<ul style="list-style-type: none"> ■ Driven by audience questions, this dialogue panel will discuss issues arising from the afternoon presentations on neurophenomenology, with continued discussion of the morning’s presentations. 		
4:30 PM	6:00 PM	Free Time
6:00 PM	7:00 PM	DINNER
7:00 PM	9:30 PM	“Monte Grande: The Life and Work of Francisco J. Varela”
<ul style="list-style-type: none"> ■ This moving documentary film will give you unique insight into the life and work of the extraordinary neuroscientist and Co-founder of the Mind and Life Institute, Francisco J. Varela (1946-2001). Followed by Panel Discussion with Richard Davidson, Matthieu Ricard, Joan Halifax, Roshi, and R. Adam Engle [Moderated by Evan Thompson]. 		
9:30 PM	10:00 PM	Meditation
10:00 PM	8:00 AM	Silence through Morning Meditation
Sunday, June 8		
6:00 AM	7:00 AM	Yoga [in Lower Auditorium – basement level]
7:00 AM	8:00 AM	Meditation
8:00 AM	8:45 AM	BREAKFAST

Morning plenary session re attention and emotion training in clinical populations

9:00 AM 9:30 AM **Amishi Jha, Ph.D.: The Influence of Meditation Training on Attention and Emotion: A Cognitive Neuroscience Perspective.**

Emotional distraction can significantly challenge our ability to perform tasks that are attentionally demanding. There is growing evidence that meditation training can improve executive functions such as the ability to pay attention and select information (e.g., Jha et al., 2007; Slagter et al., 2007). Does meditation training improve the ability to manage emotional distraction during attention tasks? To explore this question I will 1) review neural models of cognitive-affective interactions which suggest that distinct brain systems must coordinate their activity to manage emotional distraction demanding tasks; 2) discuss recent studies examining the consequences of emotional distraction on executive functions; 3) present our studies examining the benefits of meditation training on executive functioning tasks (e.g., sustained attention and working memory tasks) in which performance improvements are modulated by changes in affective states.

9:30 AM 10:00 AM **James Carmody, Ph.D.: Attention in the Clinical Applications of Mindfulness.**

■ Studies with clinical populations indicate clear benefits from mindfulness practice. While mindfulness practice has been shown to have relationships with a number of existing psychological constructs, the broader psychological mechanisms by which the effects of mindfulness occur are not well explicated. While the other aims related to practice are addressed to some extent in clinical training, the longer term aims of the training are less the focus when patients may have neither time nor the inclination for such a commitment, and are more interested in how they can use mindfulness for some immediate reduction in distress. A conceptual model of the role of attention in the clinical applications of mindfulness will be presented.

10:00 AM 10:30 AM **Sona Dimidjian, Ph.D.: Mindfulness-based cognitive therapy: Understanding attention and emotion in the risk and prevention of depression**

■ Mindfulness-Based Cognitive Therapy (MBCT) represents one of the most important recent developments in the effort to prevent the relapse and recurrence of major depression. Based on the Mindfulness-Based Stress Reduction program, MBCT teaches mindfulness in the context of a brief group intervention, incorporating meditation, yoga, and cognitive-behavioral strategies. This presentation will discuss the development of MBCT with an emphasis on the model of attention and emotion that guides MBCT. Specifically, research on attention and emotion that informs an understanding of risk for depression and the clinical application of mindfulness with this population will be reviewed. In addition, clinical research supporting the efficacy of MBCT and recent extensions of MBCT for novel clinical populations also will be highlighted.

10:30 AM 10:45 AM Break

10:45 AM 12:00 PM **Panel response to Audience questions re Attention and Emotion Training in Clinical Populations with: Amishi Jha, James Carmody, Sona Dimidjian, Joan Halifax, Roshi, Marc Lewis, and John Dunne [Moderated by Al Kaszniak]**

■ The panel will address audience questions in response to the presentations of Drs. Jha, Carmody, and Dimidjian, integrating perspectives from basic and clinical science with those of contemplative practice and scholarship.

12:00 PM 1:00 PM LUNCH

1:00 PM 1:30 PM Free Time

Afternoon plenary session re attention and positive mood cultivation

1:30 PM 2:00 PM **Barbara Fredrickson, Ph.D., The broaden-and-build theory of positive emotions: Interactions of attention and emotion.**

■ Fredrickson's broaden-and-build theory holds that, unlike negative emotions, which narrow people's behavioral urges toward specific actions that were life preserving for our ancestors (e.g., fight, flight), positive emotions broaden people's momentary thought-action repertoires (e.g., play, explore) in ways that, over time, build consequential personal resources that also aided our ancestors' survival. Fredrickson presents evidence to support the theory, including experimental data that test and support the broaden hypothesis – that positive emotions broaden people's attention and thinking – as well as new experimental data that test and support the build hypothesis – that positive emotions build people's resources and in doing so increase their life satisfaction. Fredrickson's tests of the build hypothesis point to promising interventions using meditation practice.

2:00 PM 2:30 PM **Richard J. Davidson, Ph.D.: Affect, emotion regulation and prospects for contemplative intervention.**

■ This talk will provide an overview of the entry points in the generation of emotion and in emotion regulation at which contemplative intervention may exert influence and will highlight new research strategies that might be pursued. Emphasis will be placed on biological measures of emotion and emotion regulation including measures derived from peripheral biology as well as from the brain. Predictions will be derived for the effects of different forms of meditation on several stages of the generation and regulation of emotion including the time course of emotional responding. Bidirectional interactions between emotion and cognition will be described and hypotheses about how these interactions might be influenced by contemplative training will be offered. Finally data on the impact of compassion training on the brain will be highlighted and the significance of the changes in brain function produced by such practices will be discussed.

2:30 PM 2:45 PM Break

2:45 PM 3:15 PM **Susan Bauer-Wu, Ph.D., R.N., Integrated Mindfulness and Loving-Kindness Training for Seriously Ill, Hospitalized Cancer Patients.**

■ Individuals with cancer who undergo bone marrow/stem cell transplant are fraught with innumerable emotional and physical challenges. The focus of our work is to alleviate suffering in these patients through a mindfulness-based experiential intervention, beginning prior to and continuing throughout the three-week transplant hospitalization. A pilot study using mixed methods revealed the program's feasibility and preliminary efficacy as well as rich first-person descriptions. A large, three-group randomized controlled trial (RCT) is currently underway, evaluating psychological and physical symptoms, immune-related transplant outcomes, neuro-endocrine stress hormones, and neural substrates. This presentation will describe the findings of the pilot study and provide an overview of the RCT in progress. Rationale for the integration of mindfulness and compassion/loving-kindness practices in this setting will be provided and will set the stage for group discussion of this important, and somewhat controversial, issue.

3:15 PM 4:30 PM **Panel discussion and response to audience questions re Attention and Positive Mood Cultivation with: Barbara Fredrickson, Richard Davidson, Susan Bauer-Wu, Sharon Salzberg, Matthieu Ricard, and Georges Dreyfus [Moderated by Al Kaszniak]**

■ The panel will discuss the presentations of Drs. Fredrickson, Davidson and Bauer-Wu particularly examining how scientific constructs such as positive and negative mood relate to conceptual perspectives of the Abhidharma. Panelists will also respond to audience questions concerning the presentations.

4:30 PM 6:00 PM Free Time

6:00 PM 7:00 PM DINNER

7:00 PM 9:30 PM **Poster "Preview" followed by Research Fellow and Senior Investigator Poster Session: Poster presenters will each present a 1.5 minute summary of their poster in one preview slide in a data-blitz format.**

■ This will provide audience members with an overview of the poster topics and facilitate choosing which posters to view in more detail in the following poster session.

9:30 PM 10:00 PM Meditation

10:00 PM 8:00 AM Silence through Morning Meditation

Monday, June 9

DAY OF SILENT MEDITATION **with Sharon Salzberg, Joan Halifax, Roshi and other invited contemplative faculty.**

■ This "mini-retreat" will include guided meditation appropriate for both those new to meditation practice as well as more seasoned practitioners and will include periods of sitting and walking meditation. It will provide an opportunity to practice "phenomenology on the cushion" and to observe and learn from first person experience of the fine-grained texture and moment-to-moment character of emotion-attention dynamics. Silence will be observed from 7:00 AM – 10:00 PM.

6:00 AM 7:00 AM Yoga [in Lower Auditorium – basement level]

7:15 AM 8:00 AM Meditation

8:00 AM 9:00AM BREAKFAST

9:00 AM 9:30 AM Free Time in Silence

9:30 AM 12:00 PM Meditation

12:00 PM 1:00 PM LUNCH

1:00 PM 2:00 PM Free Time in Silence

2:00 PM 5:00 PM Meditation and dharma talk

5:00 PM 5:30 PM Outdoor walking

5:30 PM 6:00 PM Free Time in Silence

6:00 PM 7:00 PM DINNER

7:00 PM 7:30 PM Free Time in Silence

7:30 PM 9:00 PM Meditation

9:00 PM 8:00 AM Silence through Morning Meditation

Tuesday, June 10

6:00 AM 7:00 AM Yoga [in Lower Auditorium – basement level]

7:00 AM 8:00 AM Meditation

8:00 AM 8:45 AM BREAKFAST

8:45 AM 9:00 AM Break

Morning plenary session re interaction of attention and emotion training during intensive contemplative practice such as the Shamata Project and extended vipassana retreats.

9:00 AM 9:30 AM **Antoine Lutz, Ph.D., Investigating the Impact of Intensive Meditation Training on Brain and Behavior.**

■ During this session I will present key behavioral and neuroimaging findings that illustrate how intensive meditative training affect mental processes and the brain. In a first study, we used fMRI to compare expert Tibetan Buddhist practitioners (>10,000 hours of meditation experience) and age-matched novices while they generated a loving-kindness and compassion meditation during the presentation of emotional sounds. In a second study, we longitudinally studied the impact of a 3 month intensive Vipassana retreat on the behavioral and electrical correlates of selective attention. In presenting the import of these studies, I will also briefly discuss the methodological challenges that researchers face when attempting to control, or characterize, the multiple factors that underlie these long-term effects of meditation training. In conclusion, I will highlight some future directions of research.

9:30 AM 10:00 AM **B. Alan Wallace, Ph.D.: The Shamatha Project — The Pursuit of Balance.**

■ In this research project 70 participants engaged in 3-month retreats during the winter and fall of 2007, devoting themselves to roughly 8 hours of meditation each day, focusing on any one or more of three shamatha practices for refining their attentional and metacognitive skills and the four immeasurables (loving-kindness, compassion, empathetic joy, and equanimity) for their own intrinsic value and for regulating their emotions. A central theme of these retreats was balance: balancing between these kinds of meditation, between engaging in individual retreats and participating in a group retreat, between maintaining silence and participating in meaningful conversation, between listening to teachings and practicing meditation, and between focusing on practice and participating in a scientific study. In this lecture Alan Wallace, the instructor for these retreats and the Contemplative Director for the Shamatha Project, will discuss how we dealt with these challenges to find balance in all facets of this project.

10:00 AM 10:30 AM **Clifford Saron, Ph.D.: The Shamatha Project – Preliminary Findings and Research Issues.**

■ This talk will describe the design and preliminary findings from a randomized wait-list controlled longitudinal study of intensive meditation recently completed at Shambhala Mountain Center. Alan Wallace led two 30+ person three-month retreats providing intensive training in meditative quiescence (shamatha) and the four immeasurables (loving kindness, compassion, empathetic joy, and equanimity) while a large collaborative team of researchers assessed the training in terms of changes in attentional stability and emotion regulation. Interview, self-report, computer-based cognitive and emotional tasks, brain and autonomic physiological measures, and biomarkers of stress and affiliation were used. The complexity of mounting this type of effort and attributing the source of effects have raised a number of important issues to consider when conducting longitudinal studies of intensive meditation practice.

10:30 AM 10:45 AM BREAK

10:45 AM 12:00 PM **Extended Discussion with scientists and contemplatives with B. Alan Wallace, Clifford Saron, Antoine Lutz, Sharon Salzberg, Anne Klein, and Jim Austin [Moderated by John Dunne]**

■ Taking up the issues raised by the morning speakers, this panel features a conversation among contemplatives and scientists about what we have learned so far about conducting research on the effects of long-term contemplative training and the prospects for the future.

12:00 PM 1:00 PM LUNCH

1:00 PM 1:30 PM Free Time

Afternoon plenary session re attention and emotion interactions across the life span with emphasis on human development and education

1:30 PM 2:00 PM **Marc Lewis, Ph.D., How the brain grows attention-emotion patterns underlying personality development and psychopathology.**

■ Emotion regulation can be understood as the reciprocal influence of higher and lower brain systems involved in processing emotion. Top-down connections from the cortex modify primitive response patterns through insight, judgment, and planning, whereas bottom-up connections from the hypothalamus and amygdala recruit cortical circuits involved in deliberate attention. Individual differences in cortical networks of emotion regulation contribute to patterns of personality and psychopathology. Moreover, recurrent emotional experiences grow these cortical differences through bottom-up connections. After outlining these ideas, I will show how family treatment can retune cortical pathways of emotion regulation in children with behavior problems. Recent findings from our lab indicate that the cortical bases of emotion regulation are still highly plastic in school-aged children, and those who benefit from treatment apparently relax cortical processes that focus their attention on threat.

2:00 PM 2:30 PM **Philip David Zelazo, Ph.D. The Modulation of (Affective) Experience by Attention: A Developmental Perspective.**

■ According to the Levels of Consciousness model (e.g., Zelazo, 2004, /TiCS/), development of prefrontal cortex is associated with several age-related increases in the degree to which children can reflect on the contents of consciousness (i.e., adopt higher levels of consciousness). After briefly reviewing neural and behavioral evidence for the model, I will discuss the implications of this model for our understanding of mindfulness and the modulation of affective experience. Recent research from our laboratory (Ortner et al., 2007, /Motivation and Emotion/) reveals that mindfulness training helps individuals avoid persistent processing of negative stimuli and remain focused on the task at hand. Acting mindfully may involve adopting higher levels of consciousness and coordinating these levels so that they are focused on a single thing.

2:30 PM 2:45 PM Break

2:45 PM 4:00 PM **Panel Discussion and Audience Questions with Marc Lewis, Philip Zelazo, Robert Roeser, Jacquelynne Eccles, Jeremy Gray and Matthieu Richard [Moderated by Al Kaszniak]**

4:00 PM 6:00 PM Free Time

6:00 PM 7:00 PM DINNER

7:00 PM 7:30 PM Free Time

7:30 PM 9:30 PM **Poster “Preview” followed by Research Fellow and Senior Investigator Poster Session: Poster presenters will each present a 1.5 minute summary of their poster in one preview slide in a data-blitz format.**

■ This will provide audience members with an overview of the poster topics and facilitate choosing which posters to view in more detail in the following poster session.

9:30 PM 10:00 PM Meditation

10:00 PM 8:00 AM Silence through Morning Meditation

Wednesday, June 11

6:00 AM 7:00 AM Yoga [in Lower Auditorium – basement level]

7:00 AM 8:00 AM Meditation

8:00 AM 8:45 AM BREAKFAST

8:45 AM 9:00 AM Break

Morning plenary session re plasticity of the compassionate brain

9:00 AM 9:30 AM **Tania Singer, Ph.D.: Plasticity of the compassionate brain: Effects of expertise and neurofeedback-based compassion training.**

■ After defining the relevant concepts, I will summarize the main results of fMRI studies on our ability to empathize with other people’s pain. I will then present parts of a larger project in which we are investigating the plasticity of the compassionate brain or, more specifically, the behavioral and neural correlates of metta meditation-based mental training and the additional benefits of neurofeedback. I will present preliminary data from a long-term meditator immersing in different compassion-related meditative states and show how they compare to the data from a meditation-naïve subject who underwent metta meditation training with neurofeedback. Both patterns of results suggest that specific brain regions associated to emotions and rewards are implicated in compassionate feelings.

9:30 AM 10:00 AM **Matthieu Ricard: Empathy and the Cultivation of Compassion.**

■ Empathy is to feel what others are feeling. When we meet someone filled with joy, we too experience joy. The same applies to suffering. Experientially, these empathic feelings are real joy and real suffering, and if empathic persons are constantly confronted with others’ suffering, they will be continually affected by that suffering. For even the most dedicated caretakers such as health care professionals, these feelings can lead to “burn out” or to dysfunctional avoidance of feelings. While engaged in studying empathy and compassion in collaboration with Tania Singer, it appeared to the meditators that a better answer to this challenge was to cultivate feelings of unconditional love and compassion toward the suffering person. Such love and compassion wipe out the feelings of distress and powerlessness that empathy alone generates and lead to constructive states of mind such as compassionate courage. A secular training in loving kindness and compassion thus might enable health workers to better serve suffering patients without experiencing the debilitating “burn out” that arises from prolonged exposure to empathy alone.

10:00 AM 10:45 AM **Panel with Richard Davidson, Tania Singer, Matthieu Ricard, Evan Thompson, Sharon Salzberg, and B. Alan Wallace [Moderated by John Dunne]**

■ Driven by questions from the audience, this panel will examine further our understanding of empathy and compassion in both scientific and contemplative contexts. Discussion will bear not only on research conducted thus far, but also on future possibilities.

10:45 AM 11:00 AM Break

11:00 AM 12:00 PM **Presentations from Varela Awardees:**

- 1) **Marieke van Vugt, '06 Varela:** Changes in item recognition performance related to intensive meditation practice
- 2) **Baljinder Sahdra, '07 Varela:** Conceptualization and Operationalization of Non-Attachment: A Buddhist Counterpoint to Western Views of Attachment.
- 3) **Zev Rosen, '07 Varela:** Effects of Mindfulness Training on working memory in Adults with Attention-Deficit Hyperactivity Disorder
- 4) **Joanna Arch, '07 Varela:** Different Approaches to Emotion Regulation: MBSR and CBT in the Treatment of Anxiety Disorders
- 5) **Helen Weng, '06 Varela:** Compassion Meditation vs. Cognitive Reappraisal as Emotion Regulation Strategies to Negative Stimuli: an fMRI Investigation

12:00 PM 1:00 PM LUNCH
 1:00 PM 1:30 PM Free Time

1:30 PM 2:30 PM **Summation and Future Directions: Amishi Jha and Richard Davidson, Moderators**

■ The main themes and recurrent issues from the week will be summarized and future directions indicated. This will be followed by open discussion driven by audience comments and questions.

2:30 PM 2:45 PM Break

2:45 PM 3:30 PM **The Francisco J. Varela Research Grant Program: Richard Davidson, David Meyer, and David Vago**

■ Members of this panel will provide an overview of the Varela Grant Program, which the Mind and Life Institute has established to foster new scientific research by young investigators into basic mental processes, neural mechanisms, and practical benefits associated with the use of systematic meditation techniques and contemplative practice. Discussion will focus particularly on how to prepare a successful Varela Grant proposal and what potential pitfalls should be avoided in doing so. Comments and questions from the audience about the Varela Grant program will be welcomed in conjunction with this discussion.

3:30 PM 4:30 PM **Panel Discussion re Issues in the Professional Development of Meditation Researchers with Al Kaszniak, Susan Bauer-Wu, Georges Dreyfus, Anne Klein, Sharon Salzberg and David Vago [Moderated by Richard Davidson]**

■ Many important professional and personal issues may arise for investigators and scholars who wish to conduct meditation research and scholarship as part of their academic career. Frequent questions include: How may meditation research be coordinated with other lines of research in establishing and maintaining a strong scientific and scholarly reputation? What types of professional positions may be most amenable to conducting meditation research? Are there optimal ways to combine a personal contemplative practice with meditation research and other aspects of professional development? This panel discussion will be driven by audience questions regarding challenges faced by scientists and scholars in attempting to bring the study of contemplative practice within the mainstream of academia.

4:30 PM 6:00 PM Free Time

6:00 PM 7:00 PM DINNER

7:30 PM 9:30 PM **Contemplative Arts Performance with David Hykes**

■ Contemplative music composer-singer, researcher and pioneering "throat singer" David Hykes will present a special evening event entitled "Harmonic Awareness: Silence, Deep Listening and the Music of the Spheres." The evening will include a concert of David's Harmonic Chant, joined by core members of his group, The Harmonic Choir (Timothy Hill, Seth Markel, Joel Bluesetein), percussionist Evry Mann, and didjeridu player Dr. Peter Hadley, celebrating the 25th anniversary of his landmark recording with the group, "Hearing Solar Winds." Mr. Hykes will share insights from nearly four decades of Harmonic Awareness work, exploring relationships of music, mind, meditation practice and healing dimensions of sound and listening. The evening will conclude with a Harmonic Meeting, an awareness-based sonic group harmonization with MLSRI participants, an event Hykes has conducted with groups as large as 750,000 people (Disarmament Rally, Central Park, NYC, 1982).

9:30 PM 10:00 PM Closing Meditation

Thursday, June 12 Departure Day

* NOTE: All participants need to vacate rooms by 2:00 PM.

6:00 AM 7:00 AM Yoga [in Lower Auditorium – basement level]
 7:00 AM 8:00 AM Meditation
 8:00 AM 9:00 AM Breakfast
 12:00 PM 1:00 PM Lunch



The Francisco J. Varela Research Grant Awards

The Francisco J. Varela Research Grant Awards (Varela Grants) are an important and integral component of the Mind & Life Summer Research Institute. Named for one of Mind and Life's co-founders, esteemed neuroscientist Francisco J. Varela (1946 - 2001), these relatively small grants, of \$15,000 each, have been awarded annually since 2004 to more than 40 outstanding junior researchers. The Varela Awards are an essential feature of the overall strategy of Mind and Life as they encourage the active collaboration of senior scientists and contemplative scholars with junior scientists who are working at the cutting edge of the boundary between spirituality and science.

These grants provide seed funding to recipients to undertake studies which have resulted in an exceptional amount

of research – some of which have led to much larger studies funded by, among others, the National Institute of Mental Health (NIMH) and the Canadian Institutes of Health. Emphasis is given to rigorous experimental designs that evaluate both state and trait effects of contemplative practice, and experimental designs that incorporate "first-person" contemplative methods into cognitive/affective neuroscience research on consciousness.

The Varela Awards are given to Research Fellows who have attended the Mind and Life Summer Institute [http://www.mindandlife.org/sri08.ml.summer.institute.html] after a competitive application process, and are a key vehicle for increasing the number of first-rate scientists, scholars and clinicians who will be mapping the future directions of the emerging fields of Contemplative Neuroscience, Contemplative Clinical Science and Contemplative Studies.

We congratulate the 2007 recipients of the Francisco J. Varela Research Grants

Joanna Arch, M.A., C.Phil., Different Approaches to Emotion Regulation: MBSR and CBT in the Treatment of Anxiety Disorders; Lab of Michelle Craske, Ph.D., UCLA Anxiety Disorders Behavioral Research Program, Dept. of Psychology, University of California Los Angeles

Jennifer Daubenmier, Ph.D., Effects of Mindfulness Meditation on Cell Aging Processes; Lab of Elissa Epel, Associate Professor of Psychiatry, University of California San Francisco

Eric Garland, MSW, LCSW, Biopsychosocial Assessment of a Mindfulness-Oriented Treatment of Alcohol Dependence, Lab of Susan Gaylord, Ph.D., Director, Program on Integrative Medicine, University of North Carolina - Chapel Hill

Joshua Grant, B.Sc. (Ph.D. in progress), Meditation and Real-time fMRI Training for the Cultivation of Compassion; Lab of Pierre Rainville, Ph.D., Physiology Dept., University of Montreal and the Institute of Geriatric's Functional Neuroimaging Unit

Teresa Hawkes, B.F.A., A Randomized Controlled Single-Blinded Pilot Trial to Compare Effects of Concentrative Sitting Meditation to Moving Meditation (Tai Chi) Training on Attentional Network Efficiency; Lab of Marjorie Woollacott, Ph.D., University of Oregon Department of Human Physiology

Britta Hoelzel, Ph.D., Does Mindfulness Training Change the Processing of Social Threat?; Lab of Sara Lazar, Ph.D., Massachusetts General Hospital

Elizabeth Hoge, M.D., Neuropeptide Levels in Meditation, Lab of Mark Pollack, MD, Professor of Psychiatry, Massachusetts General Hospital, General Clinical Research Center, Center for Anxiety and Traumatic Stress Disorder

Michael Hove, M.A., The Dissolution of Self During Rhythmic Motor Behavior, Labs of Prof. Michael Spivey, Ph.D., Cornell University and Prof. Ed Large, Ph.D., Florida Atlantic University

Kristen Jastrowski Mano, Ph.D., Mindfulness-Based Stress Reduction for the Treatment of Pediatric Chronic Pain, Lab of Dr. Steven Weisman, MD and W. Hobart Davies, PhD, Jane B. Pettit Pain and Palliative Care Center, Children's Hospital of Wisconsin

Anthony King, Ph.D., Efficacy of a 16 week Mindfulness-based Group for Combat PTSD in Recruiting Veterans, and Pilot Effects on Threat Detection and Emotion Regulation Neurocircuitry, Lab of Israel Liberzon, MD (Chief of Psychiatry, Ann Arbor VA), PTSD Clinic director: Nicholas Giardino, Ph.D., Ann Arbor VA Psychiatry Service Clinical research Laboratory, Ann Arbor VA PTSD Clinic, Israel Liberzon, MD biopsychology laboratory, University of Michigan fMRI Center

Zev Rosen, B.A., Neural Effects of Mindfulness Training on Adults with Attention Deficit Disorder, Lab of Professor Amishi Jha, Ph.D., Attention and Memory Lab at the Center for Cognitive Neuroscience, University of Pennsylvania

Baljinder Sahdra, Ph.D., Measurement and Correlates of Non-attachment, Lab of Dr. Phillip R. Shaver, Distinguished Professor of Psychology, Center for Mind and Brain, University of California, Davis

Laura Van Wielingen, M.Sc., How does Mindfulness-based Stress Reduction Improve Psychological Functioning for Cancer Patients?, Lab of Linda E. Carlson, Ph.D., C.Psych., Associate Professor, Department of Psychosocial Resources, Tom Baker Cancer Centre – Holy Cross Site, Calgary, Alberta, Canada

Anna-leila Williams, PA-C, MPH, Development and Testing of Determinants of Meditation Practice, Lab of Ruth McCorkle, PhD, FAAN, F.S. Wald Professor, Director, Center for Excellence in Chronic Illness Care, Yale University School of Nursing

Fadel Zeidan, M.A., The Influence of Meditative Experience on Pain Perception, Lab of Dr. Nakia Gordon, University of North Carolina-Charlotte Brain Imaging and Analysis Center at Duke University

Past Recipients of the Mind and Life Francisco J. Varela Research Grants

2006	2005	2004
Thorsten Barnhofer	Diego Berman	Willoughby Britton (& '05)
Judson Brewer	Norman Farb	Jason Buhle
Christopher Brown	Durwin Foster	Ryan Canolty
Catherine Crane	Joshua Grant	Arnaud Delorme
Sandra DiVitali	Brent Hughes	Philippe Goldin
Radhi Raja	Cendri Hutcherson	Patricia (Tish) Jennings
Manish Sagar	Sahib Khalsa	Catherine Ortner
Marieke van Vugt	Anthony (Tony) King	Brian Pasley
Helen Weng	Deidre Reis	Elizabeth Kimbrough Pradhan
Jaskirat (Heather) Wild	Molly Stewart Lawlor	Hilary Tindle
	Adam Safran	
	Emma Seppala	
	Michael Spezio	
	David Vago	

If you are interested in learning more about the Varela Grants, please email "info@mindandlife.org"

Faculty for the 2008 Mind and Life Summer Research Institute



James Austin has spent most of his years as an academic neurologist, first at the University of Oregon Medical School and later at the University of Colorado Health Sciences Center. He is currently Clinical Professor of Neurology at University of Missouri Health Sciences Center. Dr. Austin's cultural background includes the first sabbatical spent in New Delhi, India; and the second spent in Kyoto, Japan, where he began Zen meditation training with an English-speaking Zen master, Kobori-Roshi, in 1974. He has a keen

interest in the experimental designs and findings of investigators who are studying meditation and related states of consciousness. His early research background includes publications in the areas of clinical neurology, neuropathology, neurochemistry and neuropharmacology. Dr. Austin is the author of more than 140 professional publications, including three books: *Zen and the Brain: Toward and Understanding of Meditation and Consciousness* (The MIT Press, 1998); *Chase, Chance, and Creativity: The Lucky Art of Novelty* (Columbia University Press, 1979, 1985); and most recently *Zen-Brain Reflections* (The MIT Press, 2006).



Susan Bauer-Wu is an experienced clinician, researcher, and educator whose experience in nursing (oncology, psychiatry, and hospice) provided the foundation for her doctoral studies in psychoneuroimmunology and her post-doctoral training in psycho-oncology. She began her academic career as an Assistant Professor at the University of Massachusetts Medical School with joint appointments in the Graduate School of Nursing and Preventive and Behavioral Medicine, where she also participated in the UMass Center for Mindfulness' professional training program. Subsequently, she was an Instructor of Medicine at Harvard Medical School and served as director of Dana-Farber Cancer Institute's Cantor Center for Nursing and Patient Care Research, located in Boston. In her role at Dana-Farber, she led institutional research efforts aimed to improve both the quality of life and quality of care for cancer patients, with a particular emphasis on complementary/integrative therapies.

In 2007, she was selected as Distinguished Cancer Scholar of the Georgia Cancer Coalition, while beginning as an Associate Professor of Nursing at Emory University in Atlanta. She is the principal investigator of an NIH funded multi-site randomized controlled trial evaluating the bio-behavioral effects of a mindfulness intervention for hematopoietic stem cell transplant patients. She has published over 35 peer-review articles and book chapters and has held leadership roles with several professional and community organizations, and continues as a scientific peer-reviewer for NIH and the American Cancer Society. Besides her scholarly activities, Susan facilitates healing and resiliency retreats and training programs for cancer patients and families as well as for health care professionals.

Michel Bitbol is presently Directeur de recherche at the Centre National de la Recherche Scientifique, in Paris, France. He is based at the Centre de Recherche en Epistemologie Appliquée (CREA) in Paris. He teaches the Philosophy of Modern Physics to graduate students at



the University Paris I (Pantheon-Sorbonne). He was educated at several universities in Paris, where he received successively his M.D. in 1980, his Ph.D. in physics and biophysics in 1985, and his "Habilitation" in philosophy in 1997.

He worked as a research scientist from 1978 to 1990, specializing first in the hydrodynamics of the blood flow in arteries, and then in the microstructure of the red blood cell membranes studied by EPR and NMR techniques. From 1990 onwards, he turned to the philosophy of physics. He edited texts of general philosophy and of quantum mechanics by Erwin Schrödinger, and published a book entitled *Schrödinger's Philosophy of Quantum Mechanics* (Kluwer, 1996).

He also published two books in French on quantum mechanics and on realism in science, in 1996 and 1998 respectively. More recently, he focused on the relations between the philosophy of quantum mechanics and the philosophy of mind. He published a book on that topic in French in 2000, and worked in close collaboration with Francisco Varela. In 1997 he was the recipient of an award from the Academie des sciences morales et politiques for his work in the philosophy of quantum mechanics. He is presently learning some Sanskrit in order to get a better understanding of basic texts by Nagarjuna and Candrakirti, for a new philosophical project on the concept of relation in physics and the theory of knowledge.

Sylvia Boorstein is a co-founding teacher at Spirit Rock Meditation Center in Woodacre, CA and a Senior Teacher at the Insight Meditation Society in Barre, Massachusetts. She has worked as psychotherapist since 1967, was part of the Behavioral Sciences faculty at College of Marin, Kentfield, CA from 1970-1984, was often a panelist at conferences of the American Psychiatric Association discussing the interface of psychotherapy and meditation and in 1996 was part of the 26-member delegation of American Buddhist teachers meeting in Dharamsala with the Dalai Lama to discuss issues of teaching Buddhism in the west. She has also spoken at many Jewish meditation conferences discussing the interpolation of mindfulness and lovingkindness practice into Jewish religious practice. She helped design the Institute for Jewish Spirituality, was a member of its first faculty, and co-leads an annual training retreat for rabbis who are teaching mindfulness.



Dr. Boorstein has written five books on meditation and Buddhism, the most recent being *Happiness Is An Inside Job: Practicing for a Joyful Life*. She has been honored as Noted Humanist Scholar by Saybrook Institute and most recently was awarded an honorary Doctor of Humane Letters by the Reconstructionist Rabbinical College. Since 1991 she has taught an ongoing weekly class at Spirit Rock Meditation Center in addition to her retreat and conference work. Since 2002 she has been a regular columnist for *Shambhala Sun* magazine. www.sylviaboorstein.com

James Carmody is Assistant Professor of Medicine at the University of Massachusetts Medical School. He is a psychologist and was previously in practice as a psychotherapist and family therapist in New Zealand, his home country. His principal research interest is delineating the qualities of attending to experience that lead to well-being, and the mind-body processes associated with these. He received a Department of Defense, Congressionally-Directed Medical Research Programs New Investigator Award in 2001 and developed

a mindfulness-based dietary change intervention for men with a recurrence of prostate cancer which resulted in substantial dietary changes and associated improvements in PSA doubling time, a clinical marker for disease progression. He is presently principal investigator on two NIH-funded clinical trials of mindfulness-based interventions; one for its effect on asthma symptoms and associated immune markers, the other for its effect on vasomotor symptoms and related quality of life. He is also investigator on several other trials including coping with bone marrow transplantation, resiliency to PTSD in Iraq war veterans, and a neuroimaging mechanisms study of two mind-body training programs. James has been a vipasana and hatha yoga practitioner for thirty five years. He studied and practiced with teachers in several traditions while living in Asia in the seventies and eighties, including two year-long retreats. He teaches meditation retreats for health care practitioners.



Richard J. Davidson is the Director of the Laboratory for Affective Neuroscience and the W.M. Keck Laboratory for Functional Brain Imaging and Behavior at the University of Wisconsin at Madison. He was educated at New York University and Harvard University, where he received his B.A. and Ph.D., 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 and The Handbook of Affective Science*. Professor Davidson has also written more than 250 chapters and journal articles. He is the recipient of numerous 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 Board of Scientific Counselors of the National Institute of Mental Health. He was named one of the 100 most influential people in the world by *Time* Magazine in May, 2006 and in November, 2006 he received the first Mani Bhaumik Award from UCLA for advances in the understanding of the brain and the conscious mind in healing. In 1992, as a follow-up from previous Mind and Life meetings, he was a member of a scientific team doing neuroscientific investigations of exceptional mental abilities in advanced Tibetan monks. <http://psyphz.psych.wisc.edu>
(W.M. Keck Laboratory): <http://tezpur.keck.waisman.wisc.edu>

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(W.M. Keck Laboratory): <http://tezpur.keck.waisman.wisc.edu>



Sona Dimidjian is an assistant professor in the Department of Psychology at the University of Colorado, Boulder. She completed her Ph.D. in clinical psychology at the University of Washington in 2005 and post-doctoral training at the University of Washington and the Seattle VA. Her research has focused primarily on the treatment and prevention of depression. She has a longstanding interest in the clinical application of mindfulness and training in a number of mindfulness-based treatments, including both mindfulness-based cognitive therapy and dialectical behavior therapy. Her lab focuses on clinical research that can advance knowledge about the outcome, key processes of change, and transportability of treatment and prevention approaches, including mindfulness-based approaches, for depression.

Georges Dreyfus spent fifteen years in Buddhist monasteries before receiving, in 1985, the title of Geshe, the highest degree conferred by Tibetan monastic universities. He then entered the University of Virginia where he received an M.A. and Ph.D. in the History of Religions program. He is currently Professor of Religion of the Department of Religion at Williams College. He has published 5 books, including *Recognizing Reality: Dharmakirti and his Tibetan Interpreters* (1997) and *The Sound of Two Hands Clapping: the Education of a Tibetan Buddhist Monk* (2002), and many articles on various aspects of Buddhist philosophy and Tibetan culture. He has been chair of the Religion department at Williams College and chair of the Tibetan and Himalayan Religions group of the American Academy of Religion. He is the recipient of various awards such as a National Endowment for the Humanities.

John D. Dunne is an assistant professor in the Department of Religion at Emory University, where he is Co-Director of the Encyclopedia of Contemplative Practices and the Emory Collaborative for Contemplative Studies. He was educated at the Amherst College and Harvard University, where he received his Ph.D. from the Committee on the Study of Religion in 1999. Before joining Emory's faculty in 2005, he taught at the University of Wisconsin-Madison and held a research position at the University of Lausanne, Switzerland. Support from the American Institute of Indian Studies sustained two years of his doctoral research at the Central Institute for Higher Tibetan Studies in Sarnath, India. His work focuses on various aspects of Buddhist philosophy and contemplative practice. In "Foundations of Dharmakirti's Philosophy" (2004), he examines the most prominent Buddhist theories of perception, language, inference and justification. His current research includes an inquiry into the notion of "mindfulness" in both classical Buddhist and contemporary contexts, and he is also engaged in a study of Candrakirti's "Prasannapada", a major Buddhist philosophical work on the metaphysics of "Emptiness." His recently published work includes an essay on neuroscience and meditation co-authored with Richard J. Davidson and Antoine Lutz. He frequently serves as a translator for Tibetan scholars, and as a consultant, he has assisted Drs. Davidson and Lutz in their neuropsychological studies of Tibetan contemplative practices.

Jacque Eccles is a renowned researcher in gender and achievement at the University of Michigan and is the developer of the Expectancy-Value Model. Dr. Eccles is the Wilbert McKeachie Collegiate Professor of Psychology, Women's Studies and Education, and a research scientist at the Institute for Social Research at the University of Michigan. She has served as chair of the Advisory Committee for the Social, Behavioral and Economic Directorate at the NSF and the MacArthur Foundation on Successful Pathways through Middle Childhood. She is past president of the Society for Research on Adolescence (SRA) and was a member of the MacArthur Foundation Network on Successful Adolescent Development. Dr. Eccles has been the associate editor of *Child Development* and is currently editor of the *Journal of Research on Adolescence*. She is co-author/co-editor of 15 books including *Women and Sex-Roles*, *Managing to Succeed*, and most recently, *Understanding women's choice of*



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mathematics- and science-related careers, and *Gender and occupational outcomes*. She has received several major awards recognizing her scholarship including life-time career achievement awards from SRA, APS, Division 15 of APA, and the Society for Research on Human Development. She was elected to the National Academy of Education in 1998. Her research interests focus on the longitudinal study of the development and socialization of psychological influences on motivation, activity choice, and involvement.



R. Adam Engle, MLI Chairman and CEO, is a lawyer, businessman, and entrepreneur who has divided his professional life between the for-profit and non-profit sectors. In the for-profit sector, he began his career as a lawyer, practicing for 10 years in Beverly Hills, Albuquerque, Santa Barbara, and Teheran. After leaving the practice of law, he formed an investment management firm, focusing on global portfolio management on behalf of individual clients. He also started several business ventures in the United States and Australia. Mr. Engle co-founded the Mind and Life dialogues in 1983 with Francisco Varela, and formed the Mind and Life Institute in 1990. In 1993, he co-founded the Colorado Friends of Tibet, a statewide Tibetan support group based in Boulder. He also founded a speakers' series at the Stanford Business School entitled "Integrity and Compassion in Business", and was a founding member of the Social Venture Network. He received his A.B. degree in Economics from the University of Colorado; his J.D. degree from the Harvard Law School and his M.B.A. from the Stanford Graduate School of Business.



Wendy Farley, Professor of Religion and Ethics and Chair of Theological Studies, is a constructive theologian teaching at Emory University. Three books (*Tragic Vision and Divine Compassion*, *Eros for the Other*, and *The Wounding and Healing of Desire*) have focused primarily on human suffering interpreted through theology, continental philosophy, comparative and contemplative thought. Areas of scholarship include pre-modern theology, neo-platonism, phenomenology, and feminist theology and philosophy. In the last decade or so she has

also studied Tibetan Buddhism, focusing in particular on contemplative practices and the comparison of these with Christian contemplative literatures and practices. She co-chaired the ad hoc group that evolved into the Emory-Tibet Partnership and is now co-chairing Emory's Contemplative Studies initiative (graciously permitting John Dunne to do most of the actual work). She is currently working on a book responding to ethical and theological conflicts within contemporary Christianity and another which recovers the legacy of three medieval women contemplatives, Mechthild of Magdeburg, Marguerite Porete, and Julian of Norwich.



Barbara L. Fredrickson is Director of the Positive Emotions and Psychophysiology Laboratory (a.k.a. PEPlab) at the University of North Carolina at Chapel Hill. She received her B.A. in Psychology from Carleton College in Northfield, Minnesota, and her Ph.D. in Psychology from Stanford University. After a post-doctoral fellowship at the University of California at Berkeley, she held faculty positions at Duke University and the University of Michigan. She is currently Kenan Distinguished Professor at the University of

North Carolina within their Social Psychology Program and an elected Board Member of the Association of Psychological Science.

Fredrickson's research centers on emotions and well-being. She is most known for her broaden-and-build theory of positive emotions. This perspective holds that positive emotions are evolved adaptations that widen the scope of people's attention and action repertoires in ways that, over time, build consequential resources for survival. She and her students test aspects of the broaden-and-build theory in laboratory and field experiments, using self-report, behavioral, and physiological measures. Fredrickson is especially interested in the contributions that various positive emotions may make toward people's likelihood of attaining flourishing mental health. She has written over 70 journal articles and book chapters, is co-author of a leading introductory psychology textbook, and author of a forthcoming book describing the science of positive emotions for a lay audience (Crown Books, 2009). She has received numerous awards for her research and teaching, including the American Psychological Association's Templeton Prize in Positive Psychology. You may learn more about Fredrickson's research by visiting www.PositiveEmotions.org.



Jeremy Gray is an assistant professor in the Department of Psychology at Yale University, where he directs the Social Cognitive and Affective Neuroscience Lab. He received his BA in psychobiology (from U.C. Santa Cruz) and Ph.D. in cognitive psychology (from Harvard University). He learned to use fMRI for human brain imaging as a post-doctoral fellow at Washington University in St. Louis. Although trained as cognitive neuroscientist, Dr. Gray's work is highly interdisciplinary and relates to other areas in psychology, including self-control, higher cognition, and

emotional intelligence. Before studying cognitive neuroscience, he practiced Zen meditation in the Soto tradition for two years at the San Francisco Zen Center. His research has recently been concerned with individual differences in self-control. For studying self-control and other emotion-cognition interactions at multiple levels of analysis (including neural, genetic, and cognitive), he has received grant funding from both the National Science Foundation and the National Institutes of Health. Dr. Gray received the 2002 APA New Investigator Award in experimental psychology (for his Ph.D. dissertation work on emotion and cognitive control), and an NSF Career Award in 2007 (on research integrating affect, self-control, and intelligence). His lab's web site is <http://www.yale.edu/scan/>



Joan Halifax Roshi is a Buddhist teacher, Zen priest, anthropologist, and author. She is Founder, Abbot, and Head Teacher of Upaya Zen Center, a Buddhist monastery in Santa Fe, New Mexico. She received her Ph.D. in medical anthropology in 1973. She has lectured on the subject of death and dying at many academic institutions, including Harvard Divinity School and Harvard Medical School, Georgetown Medical School, University of Virginia Medical School, Duke University Medical School, University of Connecticut Medical School, among many others. She received a National Science Foundation Fellowship in Visual Anthropology, and was an Honorary Research Fellow in Medical Ethnobotany at Harvard University.

From 1972-1975, she worked with psychiatrist Stanislav Grof at the Maryland Psychiatric Research Center on pioneering work with dying cancer patients, using LSD as an adjunct to psychotherapy. After the LSD project, she has continued to work with dying people and their families and to teach health care professionals as well as lay individuals on compassionate care of the dying.

She is Director of the Project on Being with Dying and Founder and Director of the Upaya Prison Project that develops programs on meditation for prisoners. For the past twenty-five years, she has been active in environmental work. She studied for a decade with Zen Teacher Seung Sahn and was a teacher in the Kwan Um Zen School. She received the Lamp Transmission from Thich Nhat Hanh, and was given Inka by Roshi Bernie Glassman.

A Founding Teacher of the Zen Peacemaker Order, her work and practice for more than three decades has focused on applied Buddhism. Her books include: *The Human Encounter with Death* (with Stanislav Grof); *Shamanic Voices*; *Shaman: The Wounded Healer*; *The Fruitful Darkness*; *Simplicity in the Complex: A Buddhist Life in America*; *Being with Dying*; and *Wisdom Beyond Wisdom* (with Kazuaki Tanahashi).



David Hykes, (MFA, Columbia University) is a composer, singer, and teacher of contemplative music and meditation. He directs the Harmonic Presence Foundation which since 1981 has explored resonant relationships between mind, music, and the medicine of healing harmonization. He was the first westerner to study and collaborate with musician-practitioners from Tibet, Tuva, and Mongolia, giving concerts for H.H. the Dalai Lama and Rangjung Yeshe Institute, and with the Gyuto and Gyume Monks. In 1975 he founded Harmonic Chant, an

approach to "the music of the spheres" based on the harmonic series, as found in all music, and throughout the universe since the Big Bang (as the Cosmic Microwave Background, or CMB). His teachers are Tsoknyi Rinpoché and Chokyi Nyima Rinpoché. He is a noted "sacred cinema" composer (Dzongsar Khyentse Rinpoche's "Travellers and Magicians; John Bush's "Journey into Buddhism"; "Baraka;" Peter Brook's "Meetings with Remarkable Men"... Hykes's work has been honored by UNESCO, the National Endowment for the Arts, the Rockefeller Foundation, the New York State Council on the Arts, the Edwards Art Fund, the Threshold Foundation and with a Fellowship from the Flying Elephants Foundation. Hykes has released 11 albums, several with his pioneering group The Harmonic Choir, including "Hearing Solar Winds," the best-selling "throat-singing" album of all time. The Foundation maintains a research and retreat center in France. Hykes gives concerts, seminars, and master classes, and leads contemplative music & meditation retreats in countries around the world. For information, please visit www.harmonicpresence.org.



Amishi P. Jha is an assistant professor of psychology at the University of Pennsylvania. She received her Ph.D. from University of California-Davis in 1998, and received her post-doctoral training in the Brain Imaging and Analysis Center at Duke University (Durham, USA) in functional neuroimaging. Her research centers on the cognitive neuroscience of attention and working memory. Using functional MRI, electroencephalography (EEG), and behavioral measures she has demonstrated that there are two complementary processes that aid

"tuning" attention systems to better maintain information over time. There is an active effortful enhancement of neural representations of items that should be maintained in working memory (the memory items), as well as a selective suppression of items that may be very distracting and lead to memory errors. Recently she has begun to explore how these tuning features may be damaged in disorders of attention, such as ADHD. In addition, she is conducting an NIH-R21 funded project to investigate if attention training may lead to improvements in attentional tuning.

Specifically, she will examine the role of mindfulness meditation training in altering functioning of alerting, orienting, and conflict monitoring subsystems of attention.



Alfred W. Kaszniak received his Ph.D. in clinical and developmental psychology from the University of Illinois in 1976, and completed an internship in clinical neuropsychology at Rush-Presbyterian-St. Luke's Medical Center in Chicago. He is currently Head of the Department of Psychology, Director of Clinical Neuropsychology, Director of the Arizona Alzheimer's Consortium Education Core, and a professor in the departments of psychology, neurology, and psychiatry at The University of Arizona. His research, published in over 150 journal articles, chap-

ters and books, has been supported by grants from the NIH, NIMH, and several private foundations. His work has focused on the neuropsychology of Alzheimer's disease, age-related neurological disorders, memory self-monitoring, and the biological bases of emotion, and emotion response and regulation in long-term meditators. Dr. Kaszniak has served on the editorial boards of several journals in neuropsychology and the psychology of aging, has been an advisor to several national institutes and agencies concerned with aging and Alzheimer's disease. He is a Past-President of the Section on Clinical Geropsychology of the American Psychological Association.



Barry Kerzin received his BA in philosophy at UC Berkeley then trained in medicine at USC. A residency in Family Medicine in Ventura, California followed. Private practice in Ojai was followed by academic medicine at University of Washington as an assistant professor. He was intellectually challenged, but spiritually unfulfilled.

Illness and death were powerful influences in early life. His own childhood life-threatening illness strongly influenced becoming a doctor. The death of his mother and wife early in life prompted an intense spiritual quest for a meaning. Receiving teachings from amazing meditation masters in the east, his life changed course.

Later in Seattle he further studied and meditated with the yogi Gen Lamrimpa whom he followed back to Dharamsala, where he has remained for 19 years. Initially teaching and conducting research into Tibetan Medicine quickly he returned to Buddhist study and meditation. Later he was fully ordained by HHDL.

Barry teaches Buddhism and Science in India, USA, and Japan and continues meditation retreats. A book on Buddhist madyama is being written. In 2005 and 2006 Barry had the privilege of participating in the neuroscience meditation research with Richard Davidson and Antoine Lutz in Madison, and later participated at Princeton with Jonathon Cohen and Brent Field.



Bodhin Kjolhede was born in 1948 in Michigan and received a degree in psychology at the University of Michigan in Ann Arbor. In 1971 he entered a 15-year course of residential training at the Zen Center under Roshi Philip Kapleau, the Center's founder, who ordained him as a Buddhist priest in 1976. In 1987, after completing his koan training and a pilgrimage through Asia, Kjolhede was installed by Roshi Kapleau as his Dharma-successor and Abbot of the Zen Center. Since then he has conducted many meditation retreats

in the United States, as well as in Sweden and Mexico, at affiliated centers that are now under the direction of his Dharma-heirs. Most of Roshi Kjolhede's time now is devoted to the Rochester center and its large country retreat center nearby.



Anne Klein teaches in the Department of Religious Studies at Rice, which she chaired from 1995-1998. She mainly teaches courses on Buddhist thought, Tibetan language, and contemplative studies. Her Department is developing a graduate concentration in contemplative studies. She is Co-founding Director and Resident Teacher of Dawn Mountain Tibetan Temple, Community Center and Research Institute, a center for contemplative study and practice in Houston. (www.dawnmountain.org) In addition to her graduate work in Buddhist

and Religious Studies at the Universities of Wisconsin and Virginia, she has since 1974 studied with, and continues to learn from, renowned Tibetan scholars and meditation masters, sometimes in the US, sometimes in Asia. She has studied, practiced in, and translated works from three of the five major Tibetan traditions.

Her recent and forthcoming books are under the auspices of a Ford Foundation grant on the living dialogue between traditional Buddhism and modern Western Culture. In that same spirit, she was a panelist in the 2005 Stanford Symposium on Neuroscience and Buddhism presided over by HH the Dalai Lama, the first time she had the honor to be part of this conversation. Dr. Klein's books include *Knowledge & Liberation, Path to the Middle* and, most recently, with Geshe Tenzin Wangyal Rinpoche, *Unbounded Wholeness: Dzogchen, Bon and the Logic of the Nonconceptual*. Her book of chantable verse translations of daily recitations, *Heart Essence, The Vast Expanse: A Story of Transmission* is due out this summer. She is working also on *The Knowing Body*.



Marc Lewis is a professor of human development and applied psychology at the University of Toronto. He specializes in the study of personality development as it relates to emotion and emotion regulation. His work is informed by developmental psychology, affective neuroscience, and a dynamic systems perspective on brain and behavior. His research has focused on transitions in emotional development and, in collaboration with Isabela Granic, he has developed a state space grid methodology for analyzing socioemotional behavior as a dynamic system. More recent work utilizes

EEG methods for identifying the neural underpinnings of emotion regulation in normal and antisocial children and for assessing neural changes corresponding with successful treatment. His papers on the contribution of dynamic systems theory and affective neuroscience to understanding human development have appeared in high-profile journals such as *Child Development, Behavioral and Brain Sciences, Journal of Abnormal Child Psychology, and Development and Psychopathology*.



Antoine Lutz is a post-doctoral fellow at the Keck laboratory, University of Wisconsin-Madison. His research interests focus on the relationship between brain integrative mechanisms, such as neural synchrony, and high-order cognitive and emotional activities, including consciousness. He currently does research with Dr. Richard Davidson on the neuro-functional and neuro-dynamical characterization of meditative states of long-time Buddhist practitioners. An Engineer in Telecommunication and Computer Science

(INT), he also received a BA in Philosophy at the Sorbonne University, Paris. He worked during his doctoral research in cognitive neuroscience with Dr. Francisco Varela at Paris University on the use of first-person methods to study the relationship between large-scale brain dynamics and subjective experience (neurophenomenology approach). (<http://tezipur.keck.waisman.wisc.edu/~lutz/index.html>)



David E. Meyer is a faculty member of the Cognition and Perception Program in the Department of Psychology at the University of Michigan, Ann Arbor. A mathematical psychologist and cognitive scientist, he received his Ph. D. from Michigan and subsequently worked for almost a decade as a Member of Technical Staff in the Human Information Processing Research Department at the Bell Telephone Laboratories before returning to academe. His teaching and research – sponsored by the National Science Foundation, National Institute of Mental Health, and Office

of Naval Research – have dealt with fundamental aspects of human perception, attention, learning, memory, language, movement production, multitasking, executive mental control, human-computer interaction, personality and cognitive style, cognitive aging, cognitive neuroscience, mathematical models, and unified computational theories.

Numerous reports of this research have appeared in books and journals such as *Science, Psychological Review, Cognitive Psychology, Memory & Cognition, Journal of Experimental Psychology, Journal of Memory and Language*, and volumes of the *Attention and Performance* symposium series. After completing their doctoral degrees, Professor Meyer's many graduate students have taken professional positions at major universities and research institutions throughout the U.S. and abroad. For his diverse scientific contributions, Professor Meyer has been elected as a Fellow in the Society of Experimental Psychologists, American Psychological Society, American Psychological Association, and American Association for The Advancement of Science. The American Psychological Association has honored him with its Distinguished Scientific Contribution Award. More information about Professor Meyer may be obtained at his laboratory website, www.umich.edu/~bcalab.



Pat Enkyo O'Hara, Founder and Abbot of the Village Zendo in downtown Manhattan, is a Zen teacher and priest. Since 1985, in addition to her own Zen community, she has taught meditation to many special-needs groups, including people with HIV/AIDS, young people in drug treatment, women in an alternative to incarceration facility, as well as offering retreats and workshops generally. She serves as the Spiritual Co-director of the Zen Peacemakers and contributes to the efforts to join Buddhist practice and social response. Her teaching often focuses on the healing power involved in self-expression. She holds a doctorate in Media Ecology and taught for many years at New York University's Tisch School of the Arts, centering on social issues and new media. Roshi O'Hara's writing has appeared in *Tricycle, Turning Wheel, Buddhadhama*, and other Buddhist journals.



Luiz Pessoa is Associate Professor at the Department of Psychological and Brain Sciences at Indiana University, Bloomington. He received a Ph.D. in computational neuroscience from Boston University and post-doctoral training at the National Institute of Mental Health. His research focuses on understanding cognitive-emotional interactions by employing behavioral and neuro-

imaging methods, such as functional magnetic resonance imaging (fMRI) and, more recently, EEG and MEG. His current research addresses how top-down factors such as attention and executive control are involved in the processing of emotion-laden stimuli. He is also interested in developing quantitative methods to link trial-by-trial fluctuations in physiological responses (e.g., fMRI) and changes in behavior (e.g., successful vs. unsuccessful task performance). He has published more than 50 chapters and journal articles. Laboratory of Cognition and Emotion: www.emotioncognition.org



Matthieu Ricard is a Buddhist monk at Shechen Monastery in Kathmandu and French interpreter since 1989 for His Holiness the Dalai Lama. Born in France in 1946, he received a Ph.D. in Cellular Genetics at the Institut Pasteur under Nobel Laureate Francois Jacob. As a hobby, he wrote *Animal Migrations* (Hill and Wang, 1969). He first traveled to the Himalayas in 1967 and has lived there since 1972, studying with Kgyur Rinpoche and Dilgo Khyentse Rinpoche, two of the most eminent Tibetan teachers of our times.

With his father, the French thinker Jean-François Revel, he is the author of *The Monk and the Philosopher* (Schocken, New York), *of The Quantum and the Lotus* with the astrophysicist Trinh Xuan Thuan (Crown, New York), and *of Happiness, A Guide to Developing Life's Most Important Skill* (Little, Brown and Co, New York; Atlantic Press, London) He has translated several books from Tibetan into English and French, including *The Life of Shabkar* (Snow Lion). As a photographer, he has published several albums, including *The Spirit of Tibet* (Aperture, New York), *Buddhist Himalayas* (Abrams, New York), *Tibet, an Inner Journey* (Thames and Hudson, London & NY) and *Motionless Journey* (Thames & Hudson). He devotes all the of proceeds from his books and much of his time to thirty humanitarian projects (clinics, schools, orphanages, elderly people's home, bridges etc.) in Tibet, India, Nepal and Bhutan, and to the preservation of the Tibetan cultural heritage.



Sharon Salzberg has been teaching meditation retreats worldwide for over 30 years. She is a co-founder of the Insight Meditation Society in Barre, Massachusetts, The Barre Center for Buddhist Studies and The Forest Refuge, a new center for long term meditation practice.

Sharon is the author of *Faith: Trusting Your Own Deepest Experience*, published by Riverhead Books, *Lovingkindness: The Revolutionary Art of Happiness*, published by Shambhala Publications, *The Force of Kindness*, and *Insight Meditation: a step by step guide to how to meditate* (with Joseph Goldstein) both published by Sounds True.



Clifford Saron is currently an assistant research scientist at the Center for Mind and Brain at the University of California at Davis (<http://mindbrain.ucdavis.edu>), and a faculty researcher at the UC Davis Medical School M.I.N.D. Institute. He received his Ph.D. in neuroscience from the Albert Einstein College of Medicine in 1999 studying interhemispheric visuo-motor integration under the direction of Herbert Vaughan, Jr. Dr. Saron has had a long-standing interest in brain and behavioral effects of meditation practice. In the early 1990's he was centrally involved in a field research project investigating Tibetan Buddhist mind training in collaboration with

Jose Cabezon, Richard Davidson, Francisco Varela, Alan Wallace and others under the auspices of the Private Office of H.H. the Dalai Lama and the Mind and Life Institute.

Currently, in collaboration with Alan Wallace and numerous other colleagues at UC Davis and elsewhere, he is Principal Investigator of The Shamatha Project, a unique longitudinal study of the effects of intensive meditation training based on the practice of meditative quiescence (shamatha) and cultivation of the Four Immeasurables (loving kindness, compassion, empathetic joy, and equanimity) on attention-related skills and emotion regulation. His other primary research interest focuses on investigating brain and behavioral correlates of sensory processing and multisensory integration in children on the autistic spectrum, research conducted in collaboration with colleagues at the UC Davis M.I.N.D. Institute.



Emma Seppala is a 5th year graduate student in the Department of Psychology at Stanford University working with Dr. James Gross. Her current research interests center on empathy, compassion, and connectedness. Emma is a 2005 recipient of the Mind and Life Francisco J. Varela Research Award to pursue research on loving-kindness meditation and its effect on feelings of connectedness and compassion. Together with co-PI Cendri Hutcherson, they have found that, compared to a tight control, loving-kindness meditation leads to increased

connectedness to the target of meditation after only seven minutes of meditation, as measured both implicitly and explicitly. They are currently working on an fMRI version of this study as well as on another follow-up behavioral study.

Emma has a Master's in Buddhist Studies from Columbia University and enjoys bringing her two passions, meditation and psychology, together through academic inquiry as well as personal practice. She has been a student of Buddhism and Vedanta for 10 years and has trained in many forms of hatha yoga, from Iyengar to Sri Sri Yoga. When not doing research, she volunteers by teaching yoga, breathwork and meditation workshops with the Art of Living Foundation, a United-Nations chartered NGO dedicated to furthering peace within society by bringing peace to the individual, and the International Association for Human Values, a sister NGO founded by His Holiness Sri Sri Ravi Shankar & the Dalai Lama.



Tania Singer is Assistant Professor of Social Neuroscience and Neuroeconomics at the Center for the Study of Social and Neural Systems at the University of Zurich. She studied psychology and media at the University of Marburg and the Technical University of Berlin. She was Pre- and Postdoctoral Research Fellow at the Max Planck Institute for Human Development in Berlin, where she worked on cognitive development over the life span. For her dissertation she was awarded the Otto Hahn medal and a one-year grant, which she used to go to London to work with Chris Frith on the social brain at the Wellcome Department of Imaging Neuroscience, UCL. With the support of another grant from the Academia Leopoldina, she extended her stay in London for two years in order to proceed with her work on the neural underpinnings of empathy and fairness.

In her last year in London she worked with Uta Frith at the Institute of Cognitive Neuroscience, UCL, in London, where she extended her previous work on healthy subjects to autistic populations. She recently obtained a highly competitive grant (of the 9,167 applications submitted, 3% were funded) by the European Research Council (ERC) to fund a project entitled: Plasticity of the Empathic Brain: Structural and Functional MRI Studies on the Effect of Empathy Training on the Human Brain and Prosocial Behaviour.

She has authored many articles on the social brain in prestigious journals such as *Science* or *Nature*, is associate editor of the journal *Social Cognitive and Affective Neuroscience* and on the board of the Society for Neuroeconomics. Her main research interest is in the understanding of the foundation of human social behaviour and social emotions such as empathy and fairness from the perspective of social neuroscience, developmental and social cognitive psychology as well as economics. In her spare time, she pursues interests in the arts, participating in drama and film productions as well as studying music, voice, and dance. Homepage: www.socialbehavior.uzh.ch/static/home/singer/



Neil Theise is a diagnostic liver pathologist and adult stem cell researcher in New York City, where he is Professor of Pathology and of Medicine at the Beth Israel Medical Center of Albert Einstein College of Medicine. His research revised understandings of human liver microanatomy which, in turn, led directly to identification of possible liver stem cell niches and the marrow-to-liver regeneration pathway. He is considered a pioneer of multi-organ adult stem cell plasticity and has published on that topic in *Science*, *Nature*, and *Cell*.

Subsequently, while continuing laboratory and clinical research, he has extended his work to areas of theoretical biology and complexity theory, defining a "post-modern biology." These ideas suggest that alternate models of the body, other than Cell Doctrine, may be necessary to understand non-Western approaches to the body and health and also that understanding Western hard sciences through a complexity theory lens provides direct analogies to the major principles of Buddhist metaphysics, including emptiness of inherent existence, interdependence, impermanence, and Karmic effects.

Current laboratory investigations focus on nerve-stem cell interactions in human livers, melatonin-related physiology of human liver stem cell and regenerative processes, and aspects of human liver stem cell activation in acute, fulminant hepatic failure. He is also a long time meditator and student of Roshi Enkyo O'Hara of the Village Zendo in New York City. His writings on diverse topics can be found at www.neiltheise.com.



Evan Thompson is Professor of Philosophy at the University of Toronto. He received his B.A. from Amherst College in Asian Studies, and his Ph.D. in Philosophy from the University of Toronto. He is the author of *Mind in Life: Biology, Phenomenology, and the Sciences of Mind* (Harvard University Press, 2007 <http://www.hup.harvard.edu/catalog/THOMIN.html>), and the co-editor (with P. Zelazo and M. Moscovitch) of *The Cambridge Handbook of Consciousness* (Cambridge University Press, 2007) He is also the

co-author with F.J. Varela and E. Rosch of *The Embodied Mind: Cognitive Science and Human Experience* (MIT Press, 1991) and the author of *Color Vision: A Study in Cognitive Science and the Philosophy of Perception* (Routledge Press, 1995).

He is currently working on a new book, titled *Buddha and the Brain: Contemplative Insight and the Neuroscience of Consciousness*. Thompson held a Canada Research Chair at York University (2002-2005), and has also taught at Boston University. He has held visiting positions at the Centre de Recherche en Epistémologie Appliquée (CREA) at the Ecole Polytechnique in Paris and at the University of Colorado at Boulder. He is a member of the Mind and Life Institute's Scientific Advisory Board.

<http://www.individual.utoronto.ca/evant>



B. Alan Wallace began his studies of Tibetan Buddhism, language, and culture in 1970 at the University of Göttingen in Germany and then continued his studies over the next fourteen years in India, Switzerland, and the United States. Ordained as a Buddhist monk by H. H. the Dalai Lama in 1975, he has taught Buddhist meditation and philosophy worldwide since 1976 and has served as interpreter for numerous Tibetan scholars and contemplatives, including the Dalai Lama. After graduating summa cum laude from Amherst College, where he studied physics and the philosophy of science, he returned his monastic vows and went on to earn his Ph.D. in religious studies at Stanford University. He then taught for four years in the Department of Religious Studies at the University of California at Santa Barbara, and is now the founder and president of the Santa Barbara Institute for Consciousness Studies (<http://sbinsitute.com>). He has edited, translated, authored, and contributed to more than thirty books on Tibetan Buddhism, medicine, language, and culture, and the interface between science and religion.

His published works include *The Taboo of Subjectivity: Toward a New Science of Consciousness* (Oxford, 2000), *Genuine Happiness: Meditation as the Path to Fulfillment* (John Wiley & Sons, 2005), *The Attention Revolution: Unlocking the Power of the Focused Mind* (Wisdom 2006), *Contemplative Science: Where Buddhism and Neuroscience Converge* (Columbia University Press, 2007), *Hidden Dimensions: The Unification of Physics and Consciousness* (Columbia University Press, 2007), and *Embracing Mind: The Common Ground of Science and Spirituality* (Shambhala Publications, 2008). He has participated in numerous scientific studies of meditation, including Cultivating Emotional Balance (UCSF), the Shamatha Project (UC Davis), Mindful Awareness Project (UCLA), Meditation for Epilepsy Project (UCLA and University of Vienna), and the Compassion and Attention Longitudinal Meditation Study (Emory).



Philip David Zelazo received his BA from McGill and his PhD from Yale. From 1992-2007, he taught at the University of Toronto, where he held a Canada Research Chair in Developmental Neuroscience. He is currently the Nancy M. and John L. Lindahl Professor at the Institute of Child Development, University of Minnesota. He is also the Co-Director of the Sino-Canadian Centre for Research in Child Development, at Southwest University, China.

Professor Zelazo's research, which centers on the development and neural bases of executive function (or the conscious control of thought, action, and emotion), has been honored by numerous awards, including a Boyd McCandless Young Scientist Award from the American Psychological Association, a Premier's Research Excellence Award from the Government of Ontario, and a Canada's Top 40 Under 40 Award.

He is a Fellow of the Canadian Institute for Advanced Research (Experience-based Brain & Biological Development Program), he serves on the Board of Directors of the Jean Piaget Society, he is member of several editorial boards (Child Development, Emotion, Cognitive Development, Journal of Cognition and Development, and Monographs of the Society for Research in Child Development), and he is the co-editor (with Morris Moscovitch and Evan Thompson) of *The Cambridge Handbook of Consciousness* (2007).

<http://cehd.umn.edu/ICD/faculty/Zelazo.html>

Mind and Life Staff at the 2008 Summer Research Institute



Diego Hangartner, Pharm, M.D., Director of International Operations, Mind and Life Institute, completed his studies in pharmacology at the Swiss Federal Institute of Technology, specializing in psychotherapeutic and psychoactive substances. Having worked with drug addiction, he became interested in understanding the workings of mind and consciousness. After encountering Buddhism, he then spent 11 years in Dharamsala, India, where he first learned Tibetan and then studied for 7 years at the Institute of Buddhist Dialectics. During those years, he did several retreats and worked as a translator and interpreter, translating Tibetan into English, German, French and Spanish.

After returning to Europe in 2003, he taught widely, was General Secretary and project manager of His Holiness the Dalai Lama's visits in Switzerland 2005 and in Hamburg 2007. He has been associated with Mind and Life since the late 1990's. Presently, he is responsible for Mind and Life International, based in Zurich, Switzerland.



Robert Roeser, Ph.D., Senior Program Coordinator, Mind and Life Institute, is an associate research professor in the Institute for Applied Research in Youth Development in the Eliot-Pearson Department of Child Development at Tufts University. He received his B.A. in psychology from Cornell University and his Ph.D. in education and psychology from the University of Michigan. He also holds master's degrees in developmental psychology, clinical social work and religion. His research focuses on issues of adolescent development and education. Specifically, he studies school organizations, teaching practices, and their roles in

shaping the academic motivation, mental health, and identity development of school-aged children and adolescents. He has conducted and/or collaborated on studies of adolescent development in the United States, Europe, South Africa and India. Beginning with a Fulbright Research Fellowship in India in 2005, he has begun to study the use of contemplative practices like yoga and meditation in secondary schools for purposes of stress reduction and the enhancement of positive development among principals, teachers, and adolescent students alike.



David Vago, Ph.D., Senior Research Coordinator, Mind and Life Institute, is a post-doctoral research fellow at the Functional Neuroimaging Laboratory in the Department of Psychiatry, Weill Cornell Medical College and Senior Research Coordinator for the Mind and Life Institute. In 2005, he received his Ph.D. in cognitive and neural sciences from the Department of Psychology, University of Utah. While a post-doctoral research associate at the Utah Center for Exploring Mind-Body Interactions, David received the Francisco J. Varela award as for his clinical

and brain imaging studies investigating the effects of mindfulness training on cognitive and emotional processing in fibromyalgia. David's research interests broadly focus on the neurobiological substrates of cognitive and emotional control in the context of learning and memory processes. His current research has a particular focus on fronto-limbic modulation across the neuropsychiatric spectrum.

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A Twenty-One Year History of Accomplishment

Mind & Life Dialogues

The titles of these dialogues between the Dalai Lama and leading scientists show the range of topics that the Mind and Life Institute has explored. For more details on these conferences, please go to www.mindandlife.org.

- 2008: Investigating the Mind-Body Connection: The Science and Clinical Applications of Meditation, hosted by Mayo Clinic
- 2007: Mindfulness, Compassion and the Treatment of Depression, co-sponsored by Emory University
- 2007: The Universe in a Single Atom
- 2005: Investigating the Mind: The Science and Clinical Applications of Meditation, co-sponsored by Johns-Hopkins and Georgetown Universities
- 2004: Neuroplasticity: The Neuronal Substrates of Learning and Transformation
- 2003: Investigating the Mind: Exchanges between Buddhism and the Biobehavioral Science on How the Mind Works, co-sponsored by Massachusetts Institute of Technology
- 2002: The Nature of Matter, The Nature of Life
- 2001: Transformations of Mind, Brain and Emotion at the University of Wisconsin
- 2000: Destructive Emotions
- 1998: Epistemological Questions in Quantum Physics and Eastern Contemplative Sciences at Innsbruck University
- 1997: The New Physics and Cosmology
- 1995: Altruism, Ethics, and Compassion
- 1992: Sleeping, Dreaming, and Dying
- 1990: Emotions & Health
- 1989: Dialogues between Buddhism and the Neurosciences
- 1987: Dialogues between Buddhism and the Cognitive Sciences

Mind and Life Books and DVD Sets

The following books and DVD sets describe discussions between the Dalai Lama and Western scientists. Books in print can be obtained from major booksellers; DVD sets are available directly from the Mind and Life Institute. For more information about each title, please go to www.mindandlife.org.

- *The Science of a Compassionate Life*, DVD from the Dalai Lama's Denver Public Talk in 2006
- *The Science & Clinical Applications of Meditation*, DVD from Mind and Life XIII in 2005
- *Change your Mind; Change your Brain*, from Mind and Life XII in 2004
- *Investigating the Mind*, DVD from Mind and Life XI in 2003
- *The Dalai Lama at MIT*, from Mind and Life XI in 2003
- *What is Matter, What is Life?*, from Mind and Life X in 2002 (in preparation)
- *Destructive Emotions: A Scientific Dialogue With the Dalai Lama*, from Mind and Life VIII in 2002
- *The New Physics and Cosmology: Dialogues with the Dalai Lama*, from Mind and Life VI in 1997
- *Visions of Compassion: Western Scientists and Tibetan Buddhists*, from Mind and Life V in 1995
- *Sleeping, Dreaming, and Dying: An Exploration of Consciousness with the Dalai Lama*, from Mind and Life IV in 1992
- *Healing Emotions: Conversations With the Dalai Lama on Mindfulness, Emotions, and Health*, from Mind and Life III in 1990
- *Consciousness at the Crossroads: Conversations with the Dalai Lama on Brain Science and Buddhism*, from Mind and Life II in 1989
- *Gentle Bridges: Conversations with the Dalai Lama on the Sciences of Mind*, from Mind and Life I in 1987

Mind and Life Research Initiatives

- **Mind and Life Summer Research Institute** — A week-long residential science retreat for 185 scientists, clinicians, contemplative scholar/practitioners and philosophers from around the world, working together to develop new fields of science and studies that examine the effects of contemplative practice and mental training on brain, behavior, philosophy, religious studies and the humanities. This is an annual program of the Mind and Life Institute and was begun in June, 2004, and has continued yearly since then.
- **Mind and Life Francisco J. Varela Research Grant Program** — providing small research grants to investigate hypotheses developed at the ML Summer Research Institute. 10 to 15 Varela Awards are given yearly.
- **Mind and Life Education Research Network** — exploring how to bring the benefits of mental training in clarity, calmness and kindness to children.
- **Mind and Life Neuroplasticity of Self Identification Research Studies** — exploring the neural systems that are responsible for the processing of self identification and the neuroplasticity of those neural systems.



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