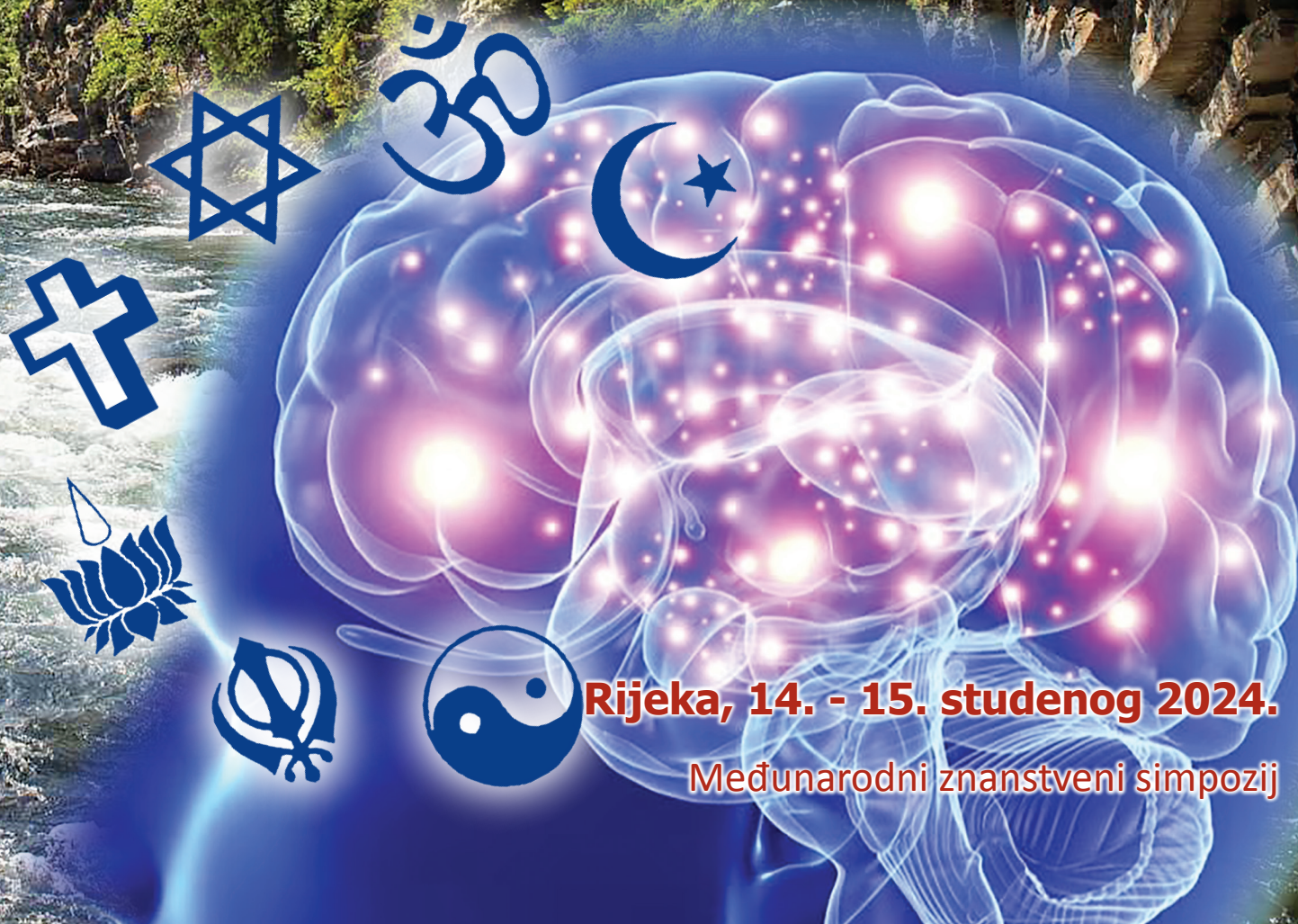


RIJEČKI ZNANSTVENI MOSTOVI 9

Neuroznanost religije: premošćujući nemirne vode



Rijeka, 14. - 15. studenog 2024.

Međunarodni znanstveni simpozij

Međunarodni znanstveni simpozij / *International Scientific Conference*
RIJEČKI ZNANSTVENI MOSTOVI 9 / *RIJEKA SCIENTIFIC BRIDGES 9*

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Velika dvorana prof. dr. sc. Alana Šustića
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RIJEKA SCIENTIFIC BRIDGES 9

Neuroscience of Religion: Bridging the Troubled Waters

International Scientific Conference

Rijeka, November 14 - 15, 2024

Faculty of Health Studies, University of Rijeka
Great Hall of Professor Alan Šustić
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Program simpozija

Prvi dan

9.30 – Otvaranje simpozija i pozdravne riječi

Prvi blok predavanja

9.45 – **Prof. Rüdiger J. Seitz** (Njemačka), **Prof. Hans-Ferdinand Angel** (Austrija), **Prof. Raymond F. Paloutzian** (Sjedinjene Američke Države)
The Meaning of Life: A Conceptual Belief whose Implications Transcend Itself

10.00 – **Prof. Lluís Oviedo** (Italija)
Theology and the Neurosciences: Time for Balance

10.15 – **Dr. Stuart Judge** (Velika Britanija)
Current Findings and Claims from Brain Imaging Studies of Religion

10.30 – Rasprava

11.00 – Kratki predah

Drugi blok predavanja

11.10 – **Prof. Alberto Carrara** (Italija)
From Neuroethics to Neurotheology. Some Epistemological and Anthropological Perspectives

11.25 – **Dr. Armand Savioz** (Švicarska), **Prof. Stephen Perrig** (Švicarska)
From Neurotheology to Theoneuroscience: Moral Choice, Dark Night, Uncanny Valley, and the Image of God

11.40 – **Prof. Piotr Roszak** (Poljska)
Similitudo deitatis and Neuroscience. Understanding Intellectual Nature as Divine

11.55 – Rasprava

12.25 – Predah

Treći blok predavanja

- 13.10 – **Dr. sc. Aku Visala** (Finska)
Can an Experience Be Genuinely Religious If It Is Caused by a Mental or Brain Disorder?
- 13.25 – **Dr. sc. Hans van Eygen** (Nizozemska)
God in the Brain. Neuroscience and Religious Information Processing
- 13.40 – **Izv. prof. dr. sc. Saša Horvat** (Hrvatska)
Neuroscience of Religious Experience – Between Subjectivity and Objectivity
- 13.55 – Završna rasprava prvog dana
- 14.30 – Zatvaranje prvog dana

Drugi dan

Prvi blok predavanja

- 11.00 – **Dr. sc. Michiel van Elk** (Nizozemska)
A Conceptual Engineering Approach to Mystical Experiences
- 11.15 – **Prof. Amir Muzur** (Hrvatska)
How Much Can Neuroscience and Religion Learn from a Near-Death Experience: A Frank Critical Re-Appraisal
- 11.30 – **Prof. Luca Malatesti** (Hrvatska)
Inabilities in the Insanity Defense: Some Issues in Neuroethical Methodology
- 11.45 – Rasprava
- 12.15 – Kratki predah

Drugi blok predavanja

- 12.35 – **Prof. Andrea Vestrucci** (Njemačka)
Expressive Belief Modeling Across Neuroscience and Formal Epistemology
- 12.50 – **Prof. Hans-Ferdinand Angel** (Austrija)
Between Religious Extremism and Secularization. The Role of Credition
- 13.05 – **Prof. Patric McNamara** (Sjedinjene Američke Države)
Decentering and the Metaxu
- 13.20 – **Dr. Wes Skolits** (Sjedinjene Američke Države)
Theistic Religious Experience and the Naturalistic Objection from the Neuroscience of Religion
- 13.35 – Zaključna rasprava
- 14.05 – Zatvaranje drugog dana

17.00 – Okrugli stol *Budućnost znanstvenog istraživanja religije*

(Velika dvorana Nadbiskupskog ordinarijata, Riječka nadbiskupija, Ul. Slaviše Vajnera Čiče 2, 51000, Rijeka)

Sudionici: Dr. Stuart Judge, Prof. Rüdiger J. Seitz, Prof. Lluís Oviedo, Prof. Piotr Roszak

Moderatori: Matea Butković i Saša Horvat

Conference Program

Day 1

9.30 – Opening of the conference and welcome speeches

First block of lectures

9.45 – **Prof. Rüdiger J. Seitz** (Germany), **Prof. Hans-Ferdinand Angel** (Austria),
Prof. Raymond F. Paloutzian (United States of America)
 The Meaning of Life: A Conceptual Belief Whose Implications Transcend Itself

10.00 – **Prof. Lluís Oviedo** (Italy)
 Theology and the Neurosciences: Time for Balance

10.15 – **Dr. Stuart Judge** (Great Britain)
 Current Findings and Claims from Brain Imaging Studies of Religion

10.30 – Discussion

11.00 – Short break

Second block of lectures

11.10 – **Prof. Alberto Carrara** (Italy)
 From Neuroethics to Neurotheology. Some Epistemological and Anthropological Perspectives

11.25 – **Dr. Armand Savioz** (Switzerland), **Prof. Stephen Perrig** (Switzerland)
 From Neurotheology to Theoneuroscience: Moral Choice, Dark Night, Uncanny Valley, and the Image of God

11.40 – **Prof. Piotr Roszak** (Poland)
Similitudo deitatis and Neuroscience. Understanding Intellectual Nature as Divine

11.55 – Discussion

12.25 – Break

Third block of lectures

- 13.10 – **Aku Visala, Ph.D.** (Finland)
Can an Experience Be Genuinely Religious If It Is Caused by a Mental or Brain Disorder?
- 13.25 – **Hans van Eygen, Ph.D.** (The Netherlands)
God in the Brain. Neuroscience and Religious Information Processing
- 13.40 – **Assoc. Prof. Saša Horvat, Ph.D.** (Croatia)
Neuroscience of Religious Experience – Between Subjectivity and Objectivity
- 13.55 – Final discussion of the first day
- 14.30 – Closing of the first day

Day 2

First block of lectures

- 11.00 – **Michiel van Elk, Ph.D.** (The Netherlands)
A Conceptual Engineering Approach to Mystical Experiences
- 11.15 – **Prof. Amir Muzur, Ph.D.** (Croatia)
How Much Can Neuroscience and Religion Learn from a Near-Death Experience: A Frank Critical Re-Appraisal
- 11.30 – **Prof. Luca Malatesti, Ph.D.** (Croatia)
Inabilities in the Insanity Defense: Some Issues in Neuroethical Methodology
- 11.45 – Discussion
- 12.15 – Short break

The second block of lectures

12.35 – **Prof. Andrea Vestrucci** (Germany)

Expressive Belief Modeling Across Neuroscience and Formal Epistemology

12.50 – **Prof. Hans-Ferdinand Angel** (Austria)

Between Religious Extremism and Secularization. The role of Credition

13.05 – **Prof. Patric McNamara** (United States of America)

Decentering and the Metaxu

13.20 – **Dr. Wes Skolits** (United States of America)

Theistic Religious Experience and the Naturalistic Objection from the Neuroscience of Religion

13.35 – Final discussion of the second day

14.05 – Closing of the second day

17.00 – Round Table *The Future of Scientific Research of Religion*

(Main Hall of the Archbishop's Ordinariate, Archdiocese of Rijeka, Slaviše Vajnera Čiče St. 2, 51000 Rijeka)

Round Table Participants: Dr. Stuart Judge, Prof. Rüdiger J. Seitz, Prof. Lluís Oviedo, Prof. Piotr Roszak

Moderators: Matea Butković and Saša Horvat

Uvod u temu simpozija

Neuroznanost religije mlado je polje istraživanja koje nastoji približiti odnos religioznog iskustva/vjerovanja i mozga. Postupno gradeći sve one nužne momente i elemente koji utemeljuju i određuju znanstvenu disciplinu, neuroznanost religije suočava se s nezaobilaznim izazovima, izraženo kroz podnaslov ove konferencije, a na tragu pjesme Paula Simona »Bridge Over Troubled Water«. Kako u sržnoj ideji interdisciplinarnih »Riječkih znanstvenih mostova« pronalazimo motiv mostova koji povezuju odvojene obale, tako će i ova konferencija povezati neuroznanstvenike, psihologe, teologe i filozofe na polju neuroznanosti religije. Vjerujući kako će konferencija ipak proteći u dinamičnijem ritmu nego što je spomenuta pjesma, predavanja će nastojati približiti ostvarenja i prilike za napredak ove mlade discipline.

Deveti u nizu »Riječki znanstveni mostovi« jedinstveni je znanstveni događaj koji će okupiti domaće stručnjake iz različitih znanstvenih polja, dok međunarodne goste očekujemo iz Sjedinjenih Američkih Država, Poljske, Njemačke, Ujedinjenog Kraljevstva, Austrije, Italije, Švicarske, Finske te Nizozemske. Simpozij se organizira i u sklopu međunarodnog projekta »Philosophy of (Neuro)Science and Theology: Understanding Data, Methods, and Results of Neuroscience of Religion«, kojega vodi izv. prof. dr. sc. Saša Horvat, a financijski podržava SET Foundations i John Templeton Foundation.

Svrha simpozija je susret stručnjaka različitih znanstvenih polja, koji su, svjesni metodološke ograničenosti vlastitih pristupa, spremni za transdisciplinarni polilog. Simpozijem se želi posvjedočiti da se i (naoko) nepremostive prepreke mogu premostiti ondje gdje postoji volja za traženjem istine, pri čemu se ne isključuje niti konstatacija nemogućnosti nalaženja odgovora ili konsenzusa, a što je osobita odlika intelektualne iskrenosti koja ipak ne znači odustajanje nego potiče na još veću ustrajnost u istraživanju.

Organizacijski odbor:

Dr. Saša Horvat (Rijeka), predsjednik, Dr. Amir Muzur (Rijeka), Dr. Piotr Roszak (Toruń), Dr. Hans-Ferdinand Angel (Graz), Dr. Nenad Malović (Zagreb), Dr. Franjo Mijatović (Rijeka), Dr. Veronika Nela Gašpar (Zagreb), Dr. Marko Medved (Rijeka), Dr. Branko Murić (Zagreb), Dr. Matea Butković (Rijeka), Dr. Berenika Seryczyńska (Rijeka), Ana Depope (Rijeka)

Introduction to the topic of the conference

Neuroscience of religion is a young field of research that aims to explore the relationship between religious experience/belief and the brain. Gradually building all the necessary components that establish and define a scientific discipline, the neuroscience of religion is also encountering its inevitable challenges, as reflected in the subtitle of this conference, inspired by Paul Simon's song »Bridge Over Troubled Water.« Just as the core idea of the interdisciplinary »Rijeka Scientific Bridges« conference lies in the concept of bridges connecting separate shores, this conference will connect neuroscientists, psychologists, theologians, and philosophers in the field of neuroscience of religion.

While we hope the conference will move at a more dynamic pace than the mentioned song, the presentations aim to highlight the achievements and opportunities for advancement in this young discipline.

The ninth edition of »Rijeka Scientific Bridges« is a unique scientific event that will bring together local experts from various scientific fields, and international guests from the United States, Poland, Germany, Austria, United Kingdom, Italy, Switzerland, Finland, and the Netherlands. The symposium is also part of the international project »Philosophy of (Neuro)Science and Theology: Understanding Data, Methods, and Results of Neuroscience of Religion,« led by Assoc. Prof. Saša Horvat, Ph.D., and is financially supported by the SET Foundations and the John Templeton Foundation.

The purpose of the symposium is to facilitate a meeting of experts from different scientific fields. These individuals, cognizant of the methodological limitations inherent in their respective approaches, are prepared for a transdisciplinary polylogue. The symposium seeks to showcase that even seemingly insurmountable obstacles can be overcome with a commitment to the pursuit of truth. It acknowledges the possibility of not finding a definitive answer or consensus, a distinctive trait of intellectual honesty; honesty that does not signify surrender but rather encourages even greater perseverance in research.

Organizing committee:

Dr. Saša Horvat (Rijeka), president, Dr. Amir Muzur (Rijeka), Dr. Piotr Roszak (Toruń), Dr. Hans-Ferdinand Angel (Graz), Dr. Nenad Malović (Zagreb), Dr. Franjo Mijatović (Rijeka), Dr. Veronika Nela Gašpar (Zagreb), Dr. Marko Medved (Rijeka), Dr. Branko Murić (Zagreb), Dr. Matea Butković (Rijeka), Dr. Berenika Seryczyńska (Rijeka), Ana Depope (Rijeka)

Sažeci / Abstracts

Hans-Ferdinand Angel

Between Religious Extremism and Secularization. The Role of Credition

The religious landscape has become disconcerting. On the one hand, interest in and commitment to the traditional form of Christianity is declining, while agnosticism and secularization are spreading – at least in the Western world. On the other hand, one can observe movements and strategies which are explicitly motivated by religious principles, and individuals who are part of them justify their behavior and attitude explicitly by religions. Some of them tend to religious extremism, fanaticism, and propagate even religiously justified violence. But what is religious?

In the first part of my presentation, I will highlight the opaqueness of religious semantics. This may help to obtain a clearer view of the role which believing plays in the divergent strands of religious and secular attitudes. In the second part, I will provide some insights into research which has been focusing on the human capacity of believing called credition. Different religious or agnostic developments have their roots in the processes of credition.

⇒ More information about credition is available on the research website:
<https://credition.uni-graz.at/de/>

Karl-Franzens-Universität Graz
Institut für Katechetik und Religionspädagogik
hfangel@inode.at / ferdinand.angel@uni-graz.at

Alberto Carrara

From Neuroethics to Neurotheology. Some Epistemological and Anthropological Perspectives

The interdisciplinary exploration from neuroethics to neurotheology examines the connections between neuroscience, ethics, and spirituality. This article addresses the evolving field of neurotheology, which integrates neuroscientific understanding of brain function with spiritual and religious experiences. By investigating the neural correlates of religious practices, such as meditation and prayer, the study highlights how brain regions like the prefrontal cortex and parietal lobes are involved in shaping spiritual experiences. Moreover, the article emphasizes a '4E' cognitive approach – Embodied, Embedded, Enactive, and Extended cognition – which calls for a holistic understanding of religious experiences that consider not only neural activity but also the broader philosophical, cultural, and social contexts. Through this integration, the field fosters deeper insights into human dignity, autonomy, and spiritual well-being. Additionally, it highlights some of the most important anthropological and ethical considerations for neuroscientific research, particularly in the context of neurotheology. This work ultimately promotes an interdisciplinary dialogue that bridges the gap between science and theology, contributing thereby to a richer understanding of the human experience.

Ateneo Pontificio Regina Apostolorum
Facoltà di Filosofia
alberto.carrara@upra.org

Hans van Eygen

God in the Brain. Neuroscience and Religious Information Processing

I discuss the relevance of recent advances in neuroscience for the philosophical and theological understanding of God. Both philosophy of religion and theology affirm that humans are capable of relating to God, which can take multiple forms, but it usually has intellectual, affective and behavioral aspects. Traditionally, relating to God has been tied to interior senses akin to the outward senses that mediate experience of and relation to God (see: Gavriluk and Coakley 2011). This paper investigates how such traditional accounts chime with recent neuroscientific accounts of human religious cognition. It investigates models such as predictive processing (Andersen 2019), affective neuroscience (Panksepp 2004), and social cognition (Adolphs 2009). By incorporating the aforementioned insights, the paper aims to provide an updated account of the inner spiritual senses informed by neuroscience.

Tilburg University
Tilburg School of Catholic Theology
H.M.R.A.VanEyghen@tilburguniversity.edu

Saša Horvat

Neuroscience of Religious Experience – Between Subjectivity and Objectivity

The neuroscience of religion is an interdisciplinary effort aiming to explore the relationship between religious experiences, beliefs, and the brain. In the first part of this lecture, we will examine what is meant by the term “religious experiences” from various scientific and academic perspectives. Next, we will take a closer look at specific studies in the neuroscience of religion and how they approach religious experiences. Following this, we will highlight certain challenges, especially subjective personal experiences and objective scientific analyses, and propose ways to improve the execution of these studies. The lecture aims to contribute to a better understanding of religious experiences as such, with the help of philosophy, theology, and the neuroscience of religion.

University of Rijeka
Faculty of Medicine / Faculty of Health Studies
sasa.horvat@medri.uniri.hr

Stuart J. Judge

Current Findings and Claims From Brain Imaging Studies of Religion

I consider recent brain imaging studies reporting on the correlation between brain variables of some kind and measures of religious belief and activity. I consider both the studies of normal subjects and those with brain damage. The dominant view of researchers in the field seems to be that the identified areas and networks in the brain strongly overlap with those involved in social cognition, rather than being unique to religion. I consider the possible explanation for the finding that the measures of religious belief and activity used in experiments are insufficiently specific to distinguish religious activity from social activity that shares much with religion.

University of Oxford
Emeritus Reader in Physiology
stuart.judge@st-annes.ox.ac.uk

Luca Malatesti

Inabilities in the Insanity Defense: Some Issues in Neuroethical Methodology

In this talk, I will explore some neuroethical methodological issues related to the concept of inability in the insanity defence. This examination highlights the broader challenge of how advancements in our understanding of the mind, brain, and behaviours impact critical social practices, particularly in legal contexts.

I will focus on legal frameworks that assess whether individuals possess the necessary capabilities for criminal responsibility. This often involves psychological testing and, sometimes, application of findings from neuropsychological and neuroscientific research. These methodologies aim to determine the mental states of defendants, examining whether they had the requisite abilities at the time of their actions.

Philosophical inquiry intersects with the study of abilities in this context, revealing potential problematic interactions. For instance, the reliance on neuroscientific evidence raises questions about the interpretation and application of data in legal settings. I will also demonstrate how conceptual refinements and analyses of the concept of ability can inform our understanding of these issues.

University of Rijeka
Faculty of Humanities and Social Sciences
lmalatesti@ffri.uniri.hr

Patric McNamara

Decentering and the Metaxu

I have presented evidence in the past that showed that a neurological decentering process is central to religious/spiritual experiences (RSEs). In particular decentering gives rise to, shapes and constrains so-called liminal states of consciousness. In this paper/chapter I systematically discuss potential links between these liminal states of consciousness and the philosophy and theology of the metaxu or the in-between or liminal state of the consciousness and personality of the human being. Authors discussed are William Desmond, Simone Weil, Eric Voegelin and of course Plato. I see the decentering neuroscience literature a clear case where neuroscience can profitably deepen some aspects of a theological anthropology - in this case those aspects of consciousness shaped by the metaxu.

Boston University
Boston University School of Medicine
mcnamar@bu.edu

Amir Muzur

How Much Can Neuroscience and Religion Learn from a Near-Death Experience: A Frank Critical Re-Appraisal

Near-Death Experience (NDE) is a widely accepted term associated with a group of phenomena, including out-of-body experience, passing through a tunnel to the light, a retrospective of one's own life, described in certain cases of surviving clinical death. In the last two decades or more, NDE has been addressed by numerous scholars and publications of various backgrounds, offering new statistics and interpretations. The present paper tries to summarize the most important of those studies and to critically evaluate how much they really contribute to religious concepts and neuroscience of death and dying.

University of Rijeka
Faculty of Medicine / Faculty of Health Studies
amir.muzur@uniri.hr

Lluís Oviedo

Theology and the Neurosciences: Time for Balance

Several decades have passed since the first attempts to engage with neuroscience from a theological perspective. This approach has even given rise to a specialized field or a new theological brand, namely neurotheology. This trend reflected a cultural atmosphere in which research on the brain was flourishing with new neuroimaging techniques and was nourished by great expectations, since this research could be applied to several other humanistic fields, such as ethics, aesthetics, linguistics, anthropology. The time is ripe to harvest the fruits of this program and possibly to consider moving to the next level after assessing the achievements and limits of this development in the theological home.

Pontifical University Antonianum of Rome
Faculty of Theology
loviedo@antonianum.eu

Piotr Roszak

Similitudo deitatis and Neuroscience. Understanding Intellectual Nature as Divine

In Christian anthropology, human uniqueness is indicated by referring to the image of God in man. Introducing the distinctions between *vestigium*, *similitudo* and *imago*, classical theology identified it with the intellectual nature and the soul, although it supplemented this structural approach with a functional and relational one. For theology, the emergence of neuroscience means rethinking the issue of the theological meaning of matter and the corporeal substratum of God's image. Neuroscientific findings regarding intelligence, its relationship with the brain and ways of developing it, are a context for theological references on human intellectual activity and a way to integrally approach human nature. Therefore, the article will first present an assessment of naturalistic explanations of human intelligence, in the perspective of various concepts of the divine image and the latest neuroscience research. Then, it will point to the historical identification of the intellect with what is divine and the Thomistic approach to the intellectual nature in man as the path to God. Finally, the dynamic aspect of understanding the image of God will be shown related to the transformation of the mind on the way to achieving *visio Dei beatifica*, which is the fulfillment of intellectual life.

Nicolaus Copernicus University
Faculty of Theology
piotr.roszak1@wp.pl

Armand Savioz / Stephen Perrig

From Neurotheology to Theoneuroscience: Moral Choice, Dark Night, Uncanny Valley, and the Image of God

Research on the science of religions is often based on philosophical reductionism, whether materialism, biologism, or other preconceptions. The particularities of religions are often obscured by mixing them into insignificant wholes. This article aims to contribute to the understanding of religions through neuroscience. It intends to take religions seriously by starting from their point of view and not from the preconceptions of science, that is to say, by doing “theoneuroscience” rather than “neurotheology.” This requires by focusing at the outset on one religion. Christianity, and particularly Catholicism, is chosen. Christians explain their religion as a call to follow a historical figure, Jesus Christ. He placed at the center of his teaching the need to make moral choices with the aim of loving others as images of God. Therefore, understanding Christianity requires the study of moral choices, stages, and levels of decision-making and their evaluation in comparison to God as an image. This will lead us to address the notions of the “dark night,” the “mount of faith” of John of the Cross, and the “uncanny valley” of Masahiro Mori and to link them to theories of religion and data from neuroscience, in particular, neuroimaging. We will propose that Christianity offers a means of evaluating moral choices through its doctrines of purification and image of God linked to a method of substitution: pleasure, suffering, and compassion lead from the uncanny valley to a mountain of faith.

Armand Savioz, Dr. Emeritus

University Hospital Geneva

armand.savioz@gmail.com

Stephen Perrig

University Hospital Geneva

Faculty of Medicine

Stephen.Perrig@hcuge.ch

Rüdiger J. Seitz / Hans-Ferdinand Angel / Raymond F. Paloutzian

The Meaning of Life: A Conceptual Belief whose Implications Transcend Itself

In an interdisciplinary approach to assessing the meaning of life, a superordinate, three-part concept is adopted to account for the complexity of life. The meaning of such an overarching concept for an individual is articulated as a narrative fulfilling the criteria of a conceptual belief. We explain how attributing meaning to one's own life transcends a person's condition beyond the here-and-now present moment. Thus, believing that one's own life has meaning serves as a mindset that guides someone to achieve envisioned goals and strive to act accordingly in the social environment. A conclusion is that the subjective meaning of the superordinate concept of life is a conceptual belief that obviates the traditional mind-body dualism.

Rüdiger J. Seitz

Heinrich-Heine-Universität Düsseldorf
Medizinische Fakultät
seitz@neurologie.uni-duesseldorf.de

Hans-Ferdinand Angel

Karl-Franzens-Universität Graz
Institut für Katechetik und Religionspädagogik
hfangel@inode.at / ferdinand.angel@uni-graz.at

Raymond F. Paloutzian, Professor Emeritus

Westmont College
paloutz@westmont.edu

Wes Skolits

Theistic Religious Experience and the Naturalistic Objection from the Neuroscience of Religion

Neuroscientists, philosophers, and theologians have speculated regarding the evidential value of neuroscientific data pertaining to religious experience. However, most of the strongest speculation has come from naturalists who argue that the neuroscientific data straightforwardly “debunks” religious experience. Typically, a naturalist’s argument proceeds in two main steps. Firstly, the naturalist argues that neuroscience data provides support for a localization thesis on which religious experiences are functionally localized to a particular brain area. Secondly, the naturalist argues that the localization of religious experience supports a naturalistic hypothesis according to which religious experiences are hallucinatory. The conclusion is then marshaled against the positive epistemic status of religious experiences. The aim of this essay is to evaluate both steps in the naturalist’s argument and to proceed as follows. In the first part of the essay, I introduce the traditional localization of function methodology in cognitive neuroscience. I then defend this approach from the recent objection that it commits mereological fallacy. However, I note that anti-localization views are on the rise in neuroscience, more generally. In the second part of the essay, I turn to the evidential question. I argue that the debate between localization and anti-localization theories is neutral on the evidential value of religious experience. Rather, the primary issue concerns the causal sufficiency of brain region(s) in religious experience. Turning to the naturalist’s main argument, I show that the claim that religious experiences have sufficient physical causes does not entail that religious experiences are hallucinatory. Moreover, I show that the naturalist’s argument surprisingly depends on a crucial a priori claim about divine action. In order to make the discussion tractable, I limit discussion to theistic religious experiences and focus on just the hypotheses of theism and naturalism.

Rutgers - New Brunswick School of Arts and Sciences
Department of Philosophy
wes.skolits@rutgers.edu

Michiel van Elk

A Conceptual Engineering Approach to Mystical Experiences

In this paper, I address the ongoing debate regarding the scientific validity of the concept of “mystical experiences.” I identify three central problems that hinder progress in this area of research: the framing problem, the definition problem, and the validity problem. The framing problem highlights the tendency to embed mystical experiences within religious or supernatural frameworks, creating biases in research and public discourse. The definition problem refers to the inconsistent and often culturally or religiously biased definitions of mystical experiences, which complicates their scientific study. The validity problem critiques the psychometric tools used to measure mystical experiences, specifically their lack of rigor and cultural sensitivity, exemplified by the Mystical Experience Questionnaire (MEQ). I argue that these problems collectively undermine the scientific utility of the mystical experience construct, particularly in psychedelic research, and propose a new approach to refine language, theory, and measurement. By doing so, I aim to advance a more precise and empirically grounded understanding of mystical experiences in scientific contexts.

Leiden University
Institute of Psychology
m.van.elk@fsw.leidenuniv.nl

Aku Visala

Can an Experience Be Genuinely Religious If It Is Caused by a Mental or Brain Disorder?

This talk is interested in two interrelated questions. (1) If a religious experience is constituted by or (partly) caused by a mental disorder, is it plausible to construe that experience as a genuine religious experience? (2) Does it make a difference (1) if mental disorders are constituted by or (partly) caused by brain dysfunctions? My answer to (1) is a negative one: if a religious experience is caused by an underlying mental dysfunction, it should not be considered a genuine religious experience. I define 'genuine' in epistemic terms: a religious experience is genuine if it is a potential candidate for being caused by God or some divine reality. However, even if a religious experience causing an underlying pathology cannot be genuine, it does not mean that it cannot carry some religious meaning and significance. It simply means that it cannot ground itself in beliefs about God or divine realities.

I consider two objections to this argument. The first objection states that because we cannot define dysfunction in a religiously neutral way, it is possible that apparent dysfunctions are, in fact, functions from a religious point of view. Against this I will argue that the dysfunctional nature of mental mechanisms involved in standard mental disorders, like depression and schizophrenia, can be defined in a religiously neutral way. Thus, it is implausible to hold that mental mechanisms underlying standard mental disorders are, in fact, functional in some religious contexts. Moreover, there are theological problems with the view that God causes evil (suffering and harm) in order to produce genuine religious experiences. The second objection asserts that maybe God or some other divine reality causes genuine experiences via dysfunctional mental mechanisms. I respond to this objection by reiterating the point that God is unlikely to communicate with human beings via mechanisms that lead people away from the truth and hinder human flourishing.

Next, I will consider question (2), namely, whether it makes a difference for question (1) if mental disorders are constituted by or identical with brain dysfunction. I argue that we should answer the question negatively. I will outline an account of "brain dysfunction," which will demonstrate how the existence of

brain dysfunction depends on mental dysfunction. So, there is nothing about brain dysfunctions that would make religious experiences caused by them any less genuine than those experiences caused by mental disorders.

In conclusion, I will draw some lessons from my discussion for the neuroscientific study of religion. The lessons have to do with the potential existence of specialized brain circuits or cognitive mechanisms for religious experience and the nature of reductionism.

University of Helsinki
Faculty of Theology
aku.visala@helsinki.fi

Andrea Vestrucci

Expressive Belief Modeling Across Neuroscience and Formal Epistemology

In recent years, the study of belief has expanded to encompass insights from both neuroscience and formal epistemology. This talk explores an interdisciplinary approach to belief modeling that integrates neuroscientific advancements with formal epistemic frameworks. Central to this exploration is the distinction between language-based and non-linguistic belief processes. These findings from neuroscience challenge traditional models of belief that emphasize propositional and rational structures. To bridge this gap, the talk proposes an epistemic model based on systems of linear equations, capturing the dynamic operations of belief updating and reasoning in both linguistic and non-linguistic contexts. This system offers a flexible structure that accommodates a vectorial representation of beliefs and allows for the manipulation of belief states in ways that align with neuroscientific evidence.

Universität Bamberg

Faculty of Information Systems and Applied Computer Sciences

andrea.vestrucci@uni-bamberg.de

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