quantum paradigms of psychopathology
a global scientific initiative

A Brief History of QPP

The Quantum Paradigms of Psychopathogy ("QPP") initiative began in June 2008. At that time Donald Mender, M. D., a psychiatrist on the clinical faculty of Yale University, conducted an informal poll of scientific contributors to a series of three Quantum Mind conferences affiliated with the Center for Consciousness Studies at the University of Arizona. These meetings had sought to explore the relevance of quantum physics to sentient processes in the normal brain.

Quantum Mind has been an ongoing field of study since the final decades of the last century. Pioneers like the physicists Hiroomi Umezawa, Kunio Yasue, and Giuseppe Vitiello, mathematicians like Roger Penrose, and biomedical investigators like Stuart Hameroff, Gordon Globus, and Gustav Bernroider have plumbed the depths of subatomic structure and its macroscopic amplifications in search of substrates for quantum computation and other capabilities that may match attributes of the human psyche better than models advocated by conventional cognitive neuroscience. Such approaches have gained thermodynamic credibility since Gregory Engel at the University of Chicago experimentally demonstrated in 2007 the crucial operation of non-trivial quantum processes at biological temperatures in photosynthesis.

In June 2008 Dr. Mender asked Quantum Mind veterans whether there exists among researchers any interest in the prospect of applying insights from Quantum Mind to aberrant processes underlying schizophrenia, bipolar illness, and other forms of psychopathology. The idea was to adapt normative concepts introduced by Professors Hameroff, Yasue, Vitiello, and their colleagues toward a grounding of psychiatric disease in counter-intuitive but physically foundational quantum phenomena within the brain. The answer of those polled by Dr. Mender was a robust "yes."

Hence, an organizing committee for a QPP initiative was formed later in 2008 under Dr. Mender's leadership. This body was soon reconstituted as the QPP Scientific Program Committee, chaired by Prof. Globus and including Prof. Bernroider as Co-Chair for the Basic Sciences. Dr. Mender served as the QPP Scientific Program Committee's third member and corresponding secretary. QPP also gathered together a distinguished Advisory Board, whose current membership is listed on this document's letterhead.

Members of the QPP Scientific Program Committee, Advisory Board, and general email list soon received a call for research articles aimed at extending the application of quantum neuroscience toward a deeper understanding of psychopathology. Dr. Sultan Tarlaci, founder and editor-in-chief of NeuroQuantology (www.neuroquantology.com) and a QPP Advisory Board member, offered to publish works selected from these papers in his journal.

Nine fertile texts appeared in the resulting symposium, published on line in the March 2011 issue of the NeuroQuantology Journal. In his lead target article, Prof. Globus propounded a highly original concept of schizophrenia linked to the "tuning" of quantum vibrations suffusing the brain. Prof. Nancy Woolf, along with co-authors including Prof. Jack Tuszynski, offered credible links between psychopathology and quantum-computational dysfunction within the skeletal proteins giving shape to brain cells. Prof. Paavo Pylkkanen related the physical substrates of mental illness to quantum "pilot waves." Dr. Mender proposed ways of comprehending the neurophysiology of disordered thinking and emotion in terms of quantum "phase transitional" analogies to the freezing and melting of ordinary matter. Five commentators on these four target papers each introduced additional fresh quantum perspectives on the biophysical origins of psychopathology.

QPP's activities over the several years following the March 2011 on line symposium have developed further. Dr. Mender and thereafter his successor as QPP Corresponding Secretary, Prof. Mansoor Malik of Howard University, have continued to edit a section dedicated to QPP in subsequent issues of the NeuroQuantology Journal. That section and other journals, most notably Quantum Biosystems, have brought forth several additional papers. These include but are not limited to: Dr. Mender's synopsis of the March 2011 symposium; multiple works by Prof. Massimo Pregnolato, Prof. Massimo Cocchi, Prof. Lucio Tonello, and their collaborators on links between serotonin and quantum phenomena via membrane biophysics in depression and psychosis; development, by Prof. Eliano Pessa and the above researchers, of symmetry breaking as a mathematical tool for taxonomic parsing of psychiatric disorders; creation, by Dr. Paola Zizzi and Prof. Pregnolato, of a quantum-logical foundation for primary process thinking in the normal subconscious mind and in schizophrenic consciousness, and of a non-algorithmic mental metamathematics; Prof. Ursula Werneke's consideration of psychotically "impaired" reality-testing from the perspective of Hugh Everett's many-worlds ontology; Dr. Mender's neuropsychiatrically contextualized reframing of wave-related quantitative information and qualia in light of, respectively, the anthropic principle and a q-boson-like distortion gauge; and numerous abstracts of presentations at three live QPP conferences held in Italy between 2012 and the present.

Prof. Cocchi of the L. U. de S. University in Lugano Switzerland, following his ascent as QPP Treasurer, organized those landmark face-to-face gatherings as interdisciplinary QPP symposia in Fano, Palermo, and Bologna, where productive in situ synergy occurred. New scholarly work opening up fresh perspectives on the potentially key role of quantum neurodynamics in mental illness has been generated in the wake of the three meetings in Italy. Other important outcomes of the conferences have been the emergence of L. U. de S. University as an institutional home for QPP's world-wide efforts going forward and involvement in QPP's efforts by Nobel Laureate Kerry Mullis. These milestones have been reached under the executive stewardship of Prof. Globus's successor as QPP Chair, the energetic and imaginative Prof. Pregnolato of the University of Pavia, and Prof. Pregnolato's more recent successor, the widely respected physicist Prof. Tuszynski of the University of Alberta.

Under Prof. Tuszynski's leadership, a fourth annual QPP symposium is scheduled to occur at Lake Como in May 2015, where, beyond plenary talks of general interest to QPP's membership, discussions are also planned with a new group of possible collaborators, including Prof. Imre Koncsik of Ludwig-Maximillians University in Munich. An anticipated portion of the Lake Como proceedings will specifically explore in detail potential psychiatric applications of the Koncsik group's projected computational work on quantum based steering of adaptive non-linear networks.