

TOPIC 2007 // CONSCIOUSNESS AND QUANTUM COMPUTERS

More than half a century after inventing the transistor which triggered the development of modern electronics, computing, and telecommunications, research is challenged by the theoretical and technical problems of Quantum Computing. Fascinating experiments like quantum teleportation not only reveal the brilliant work of quantum physicists, but they are also of epistemological and special value. The new research field is about to explode; technical publications are increasingly available world-wide; market studies about the new technique refer to its potential being worth billions. A New York Times' report comparing quantum computers to classical PCs concludes that «it's like comparing nuclear power to fire». And acclaimed quantum physicists attest quantum computers yet unreamt capacities: By manipulating so-called quantum bits or qubits, they are expected to solve problems millions of times faster than today's machines.

The 7th Swiss Biennial on Science, Technics + Aesthetics «Consciousness and Quantumcomputers» presents internationally known speakers and specialists from the disciplines of quantum physics, consciousness research, art, and philosophy for interdisciplinary discussion. The debate's major issues have their roots in earlier Lucerne conferences: Does our brain function according to quantum mechanical principles as some researchers claim? How does the new key technology challenge our conventional conception of matter, mind and information? Do we have to expect basic modifications of our understanding in «computing» as the Austrian physicist Anton Zeilinger states? Does quantum teleportation represent a method that allows quantum computers to communicate with each other in the near future? Are quantum computers able to read our thoughts, or do conscious actions in the brain – as the British mathematician Roger Penrose suggests – lie beyond the possibilities of computer simulations? How can we understand the Dalai Lama's predication that «the physical basis of a computer decides if it can carry a stream of consciousness in the Tibetan-Buddhist sense»?

There is a surprising parallel view between Nagarjuna's philosophical understanding of reality and the physical reality of quantum physics. For both fundamental reality doesn't consist of a firm core but of systems of interacting opposed objects. These concepts of reality are incompatible with the substantial, subjectivist, holistic and instrumentalist concepts of reality underlying modern ways of thinking (Christian Thomas Kohl). Representatives of buddhism discuss these ideas on Sunday and will respond to the physical, epistemological and philosophical answers and theses given at the Biennial's 1st day.

And what about art? What is the function of art in view of the current dramatic development of scientific specialization, or the adjustment of the production of scientific knowledge to the technosciences? What kind of methodologies will be able to meet the dynamic development of the (natural)sciences most effectively?

The New Gallery Lucerne (the former New Gallery Schlössli Götzentel, Dierikon) celebrates the 20th anniversary. The Swiss Biennial which was founded in 1994 and which acts as a platform for the New Gallery Lucerne is seeking answers to these questions at the frontiers and the interface among the natural sciences, philosophy, art and aesthetics.

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