



# 4 Sense-Elements but 3 Ontological Levels

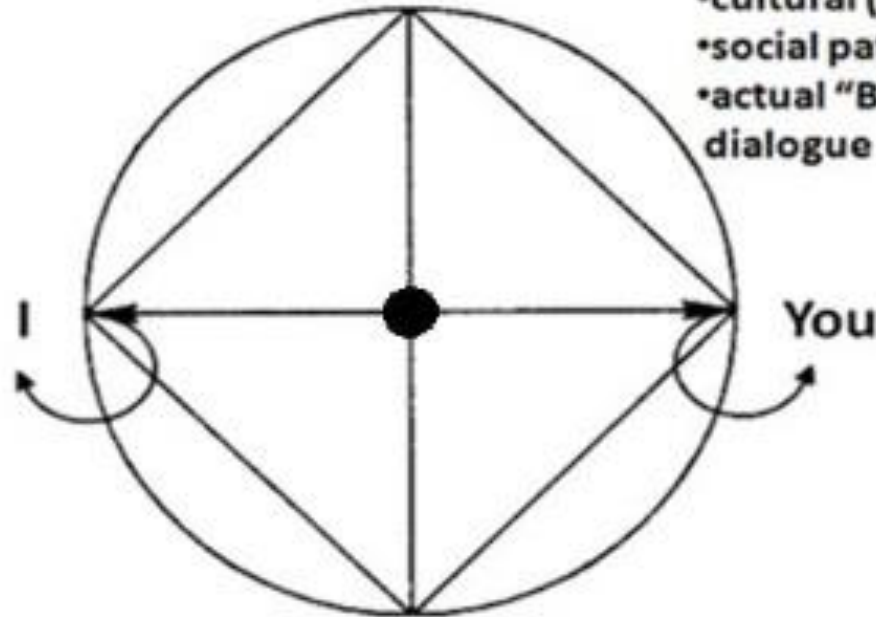
**SPIRIT**

**Sense-Medium**

- over-cultural ("ALL")
- cultural (languages)
- social patterns
- actual "Between" of dialogue

**TRANS-PERSONAL**

**SOUL**



**PERSONAL**

**BODY**

**It (objects)**

**PRE-PERSONAL**



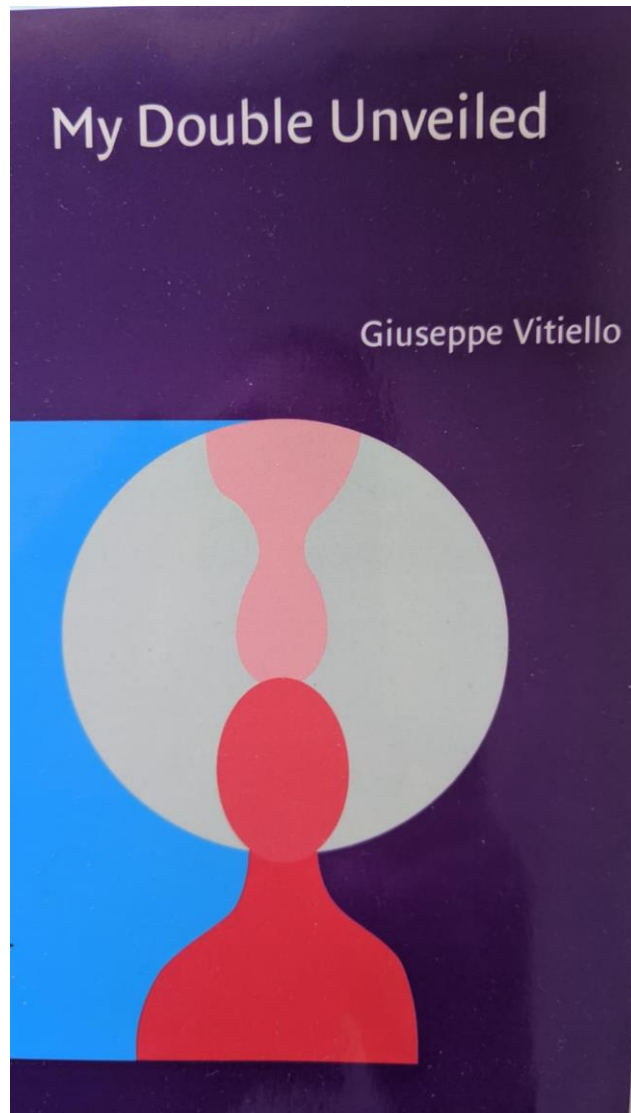
# Consciousness



<b>Subject</b>	<b>Self-referentiality with reflection of the environment</b>
<b>I-subject vs. Y-subject</b>	$S_s$ vs. $S_o$ ; thematic inversion; 2 <sup>nd</sup> quantization
<b>Sense-Medium</b>	Actual infinity of a self-interacting field; creation of meaning; Information Field
<b>Unity; wholeness</b>	Unity of quantum-states
<b>experience</b>	Reflection into a medium of unity
<b>non-dual</b>	multivalued logic
<b>Physical Correlates of Consciousness</b>	
<b>Conscious vs. unconscious</b>	Mind-matter entanglement
<b>Causal influence of consciousness on matter</b>	Free will; vs. determinism; randomness; non-computability



# IM Umezawa, Freeman, Vitiello



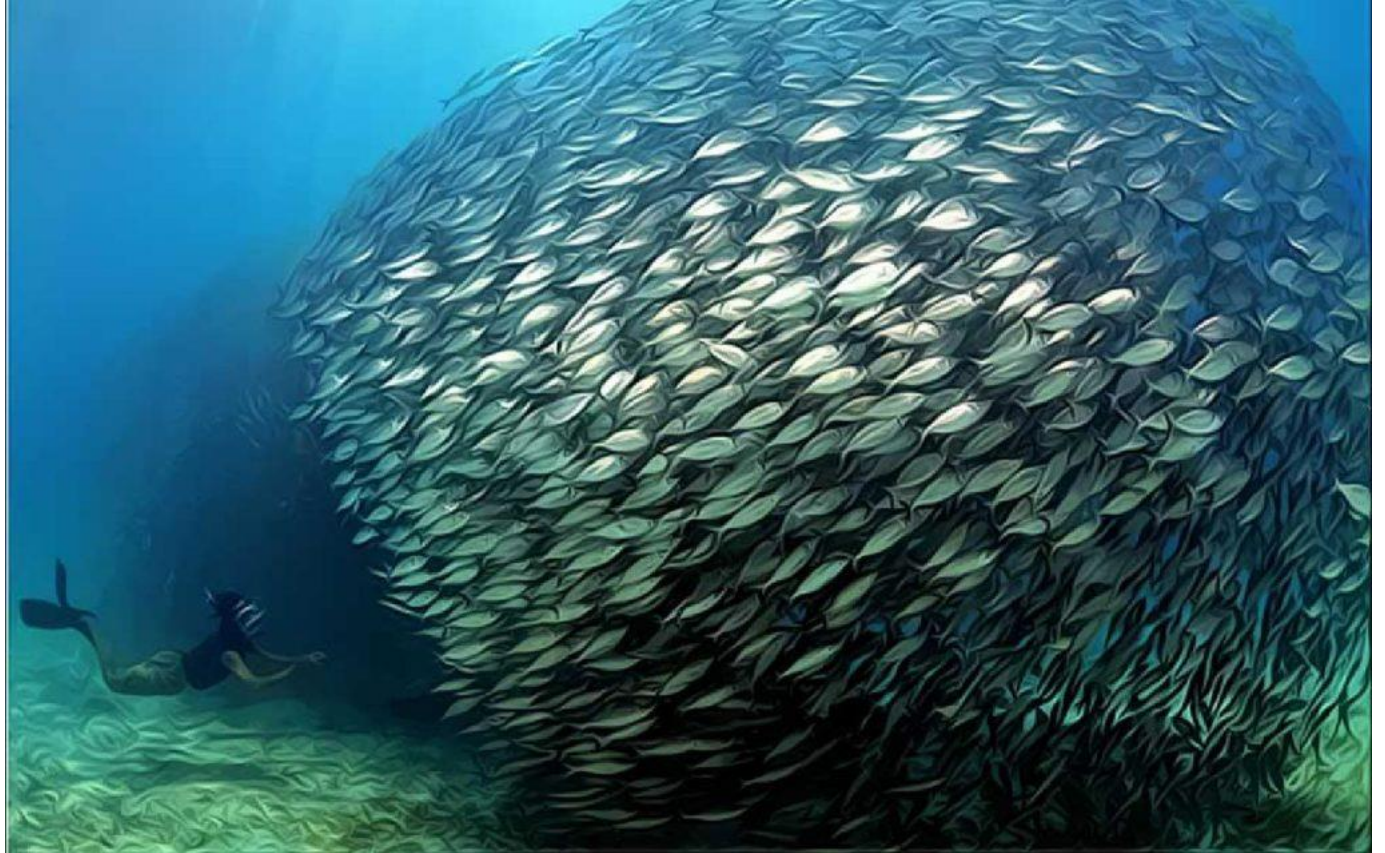
Consciousness as vacuum states of quantum fields; Quantum Field Theory of brain states coherent neuronal assemblies correlated to such memory states are regarded as vacuum states; their activation leads to excited states and enables a conscious recollection of the content encoded in the vacuum (ground) state.

Dissipation: system-environment interaction causes infinitely many differently coded vacuum states (many memory contents without overprinting of finite lifetime) and generates a genuine arrow of time (mirrored time as mental states)

# Coherent Domains in QFT

Ground states of the quantum vacuum generate macroscopic ordered behaviour

Long range correlations are ground states of the quantum vacuum



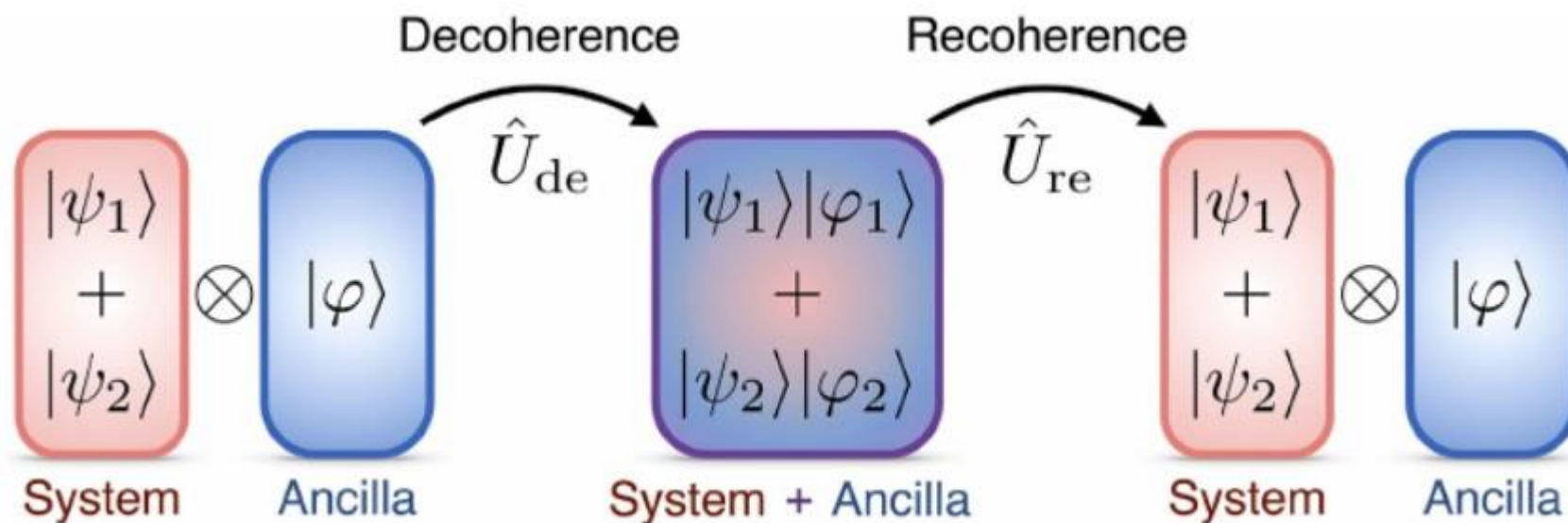


# Decoherence and Recoherence in Quantum Brainstates

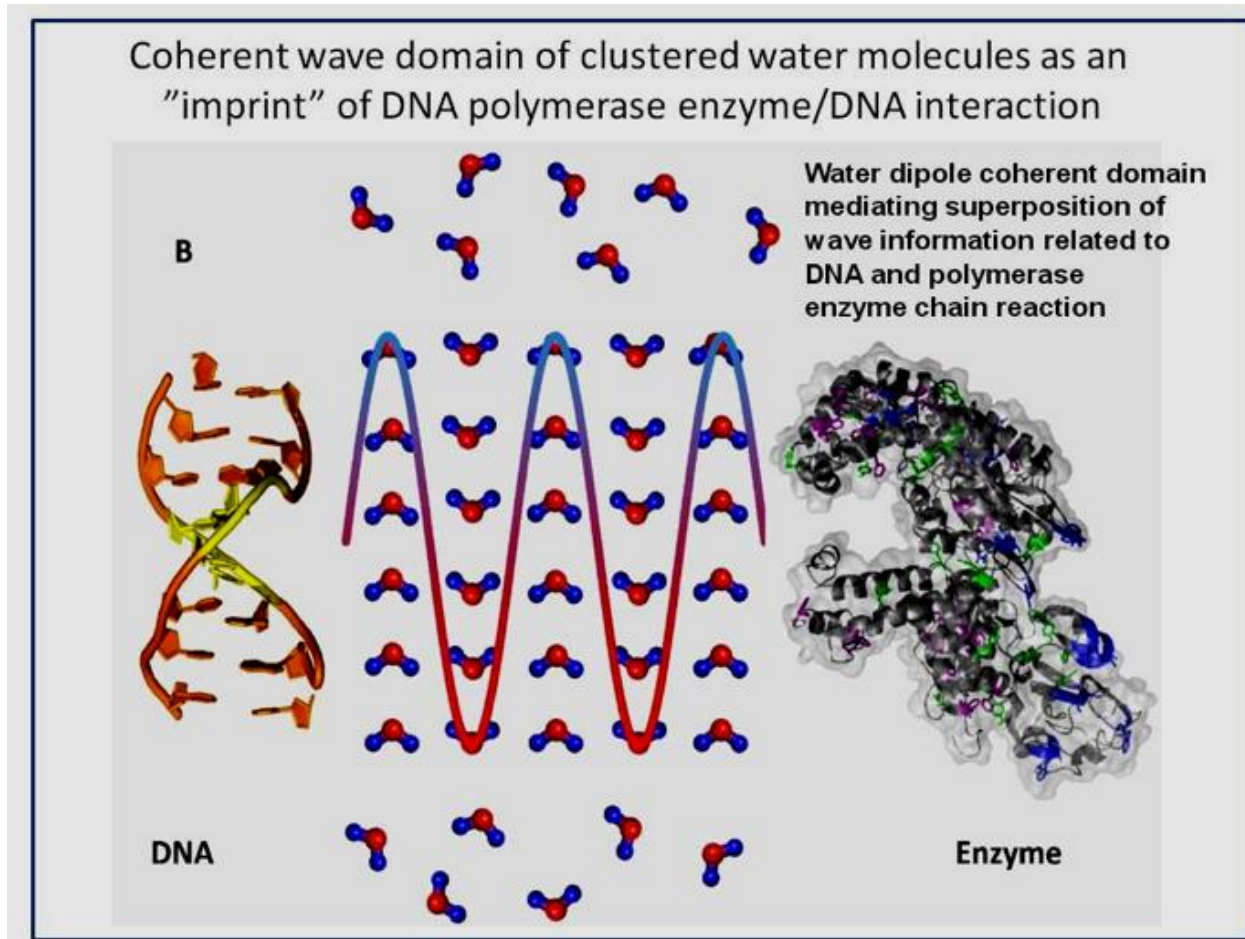


Hartmann *et al.* 2006, Li and Paraoanu 2009

- interacting spins can have entangled states in noisy open quantum systems at high temperature and far from thermal equilibrium
- decoherence counterbalanced by “recoherence” mechanism
- entanglement even in hot and noisy environments as the brain



# Coherent Domains in Water



- *Geesink and Meyey, 2020*
- *Montagnier et al., 2017*



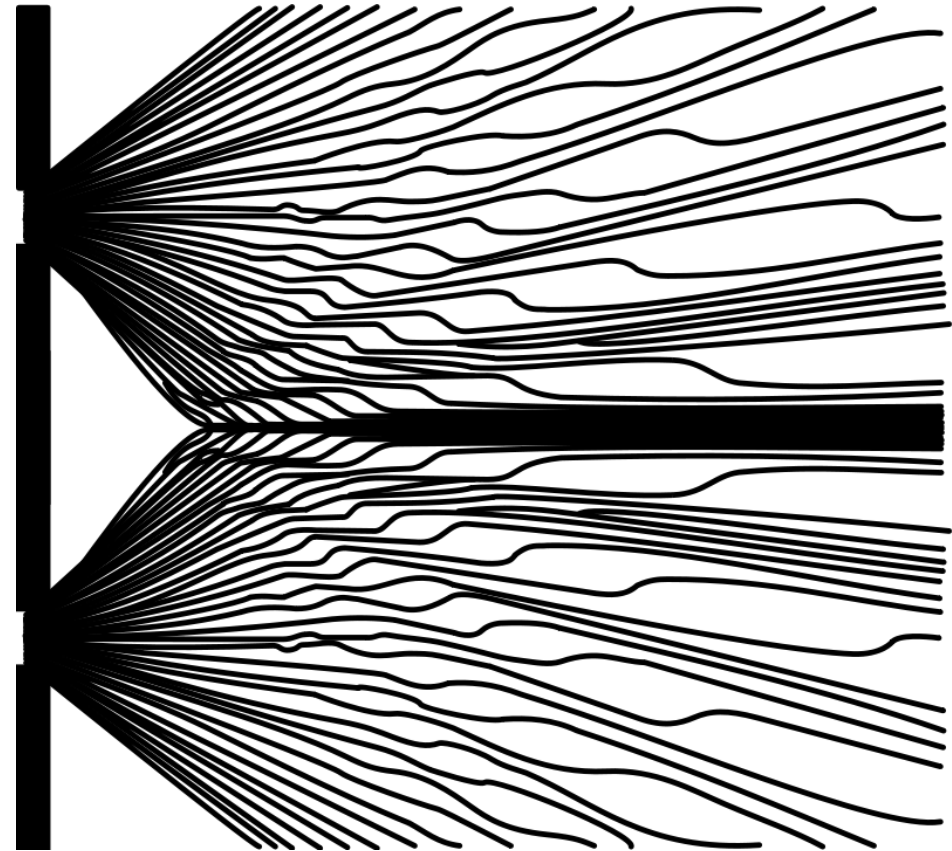
# RM David Bohm, Basil Hiley, Paavo Pylkkänen



- QT can be represented realistically so that consciousness appears in non-physical expansions of the theory
- Active Information as the underlying reality has two sides: the mental and the physical
- Reality is a dynamical process of un- and enfolding of implicate and explicate orders

## **Holomovement**

Active Information : Mental and Physical explicate orders

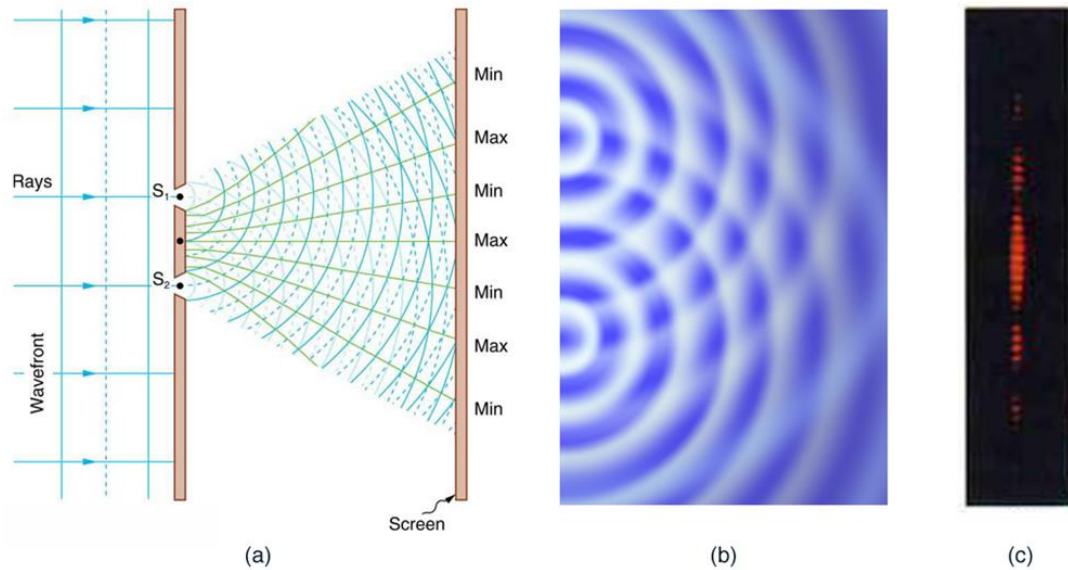




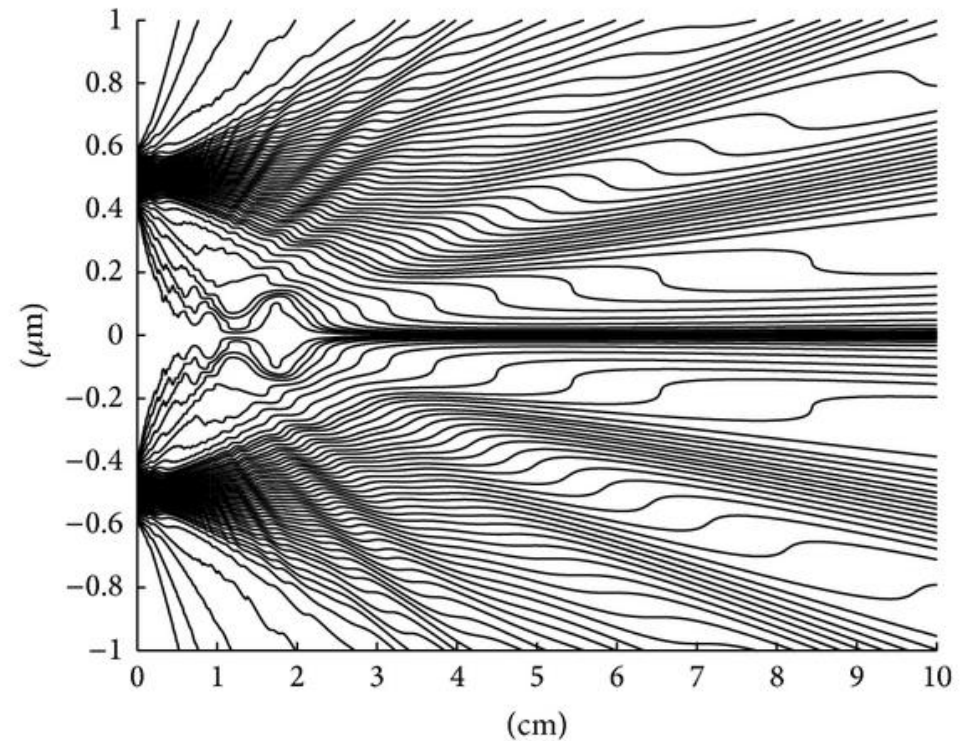
# The Double Slit Experiment



## Wave picture



## Bohms trajectories





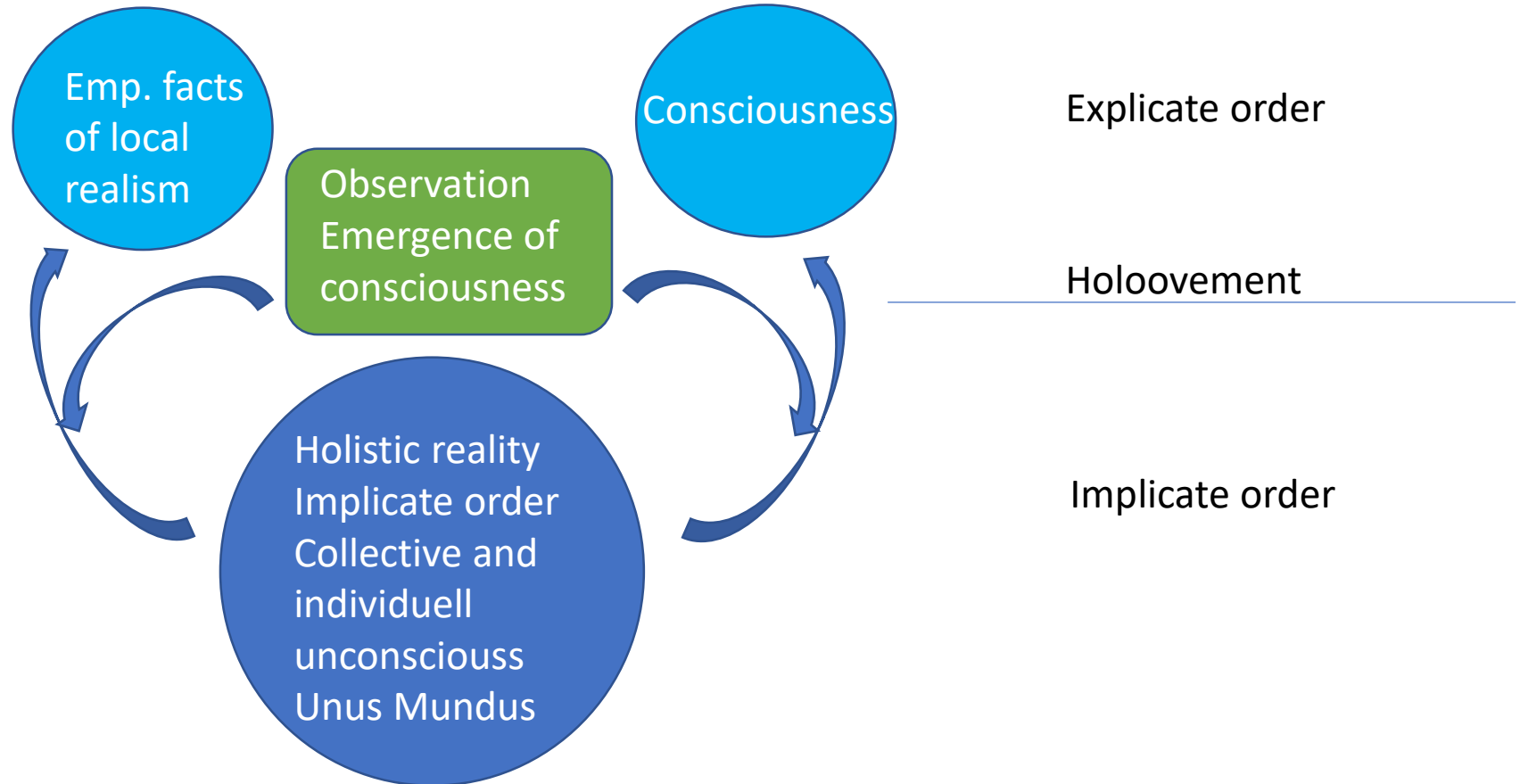


# IM C.G. Jung & Wolfgang Pauli





# Unus Mundus or psychophysical reality







# Expansions of Quantum theory towards Consciousness

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*Lecture 4*

*Consciousness, Information Fields and the vertical Axis*



# Bohr vs. Bohm

