

# *Emergence of Quantum Coherence in Liquid Water and Aqueous Systems*

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QuantumElectroDynamics (QED) describes liquid water as a two-phase system: a noncoherent phase made up of an ensemble of independent molecules forming a dense gas and a coherent phase made up of large aggregates ( some millions) of molecules oscillating in unison between two configurations of their electron clouds in tune with a self-trapped electromagnetic field. The coherent phase of water , through its electromagnetic field , is able to interact with the environment; in particular, because of coherence, it is able to detect external electromagnetic potentials according to the Bohm-Aharonov effect. Consequently the physical properties of the coherent phase of water are bound to change when the potentials produced by physical events occurring also far away come in contact with the liquid. In this way the so far mysterious outcomes of the experiments performed by Piccardi and the more recent surprising results of Voeikov could find a rationale.