Foundations of quantum theory empty

Classical particles in phase space Quantum theory is an intrinsically statistical theory: our inability to deterministically describe measurement results is not due to a lack of information on the system, but emerges from the theory itself. An analogy within classical dynamics may be found on ensemble theories in phase space.

A phase space is a geometrical construct able to represent every possible state of a given physical system. For a single classical particle with N degrees of freedom it is usual to define equation $\Gamma = \{(p_i, q_i) \mid i = 1, 2, \ldots N\}$,