ULTRACOLD ATOMS QUANTUM PHYSICS

Quantum physics is the branch of physics that studies the behaviour of small physical systems (atoms, electrons, etc.) with some quantized properties (energy, momenta, etc.).







"If quantum mechanics hasn't profoundly shocked you, you haven't understood it yet."

-Niels Bohr

Quantum theory was born at the beginning of the XX century. The Solvay conferences brought together the brightest minds, who discussed and developed

quantum mechanics.



In quantum physics we use wave functions to describe the physical system, made for instance of atoms, electrons, etc., and probability densities to calculate its properties.

Bose-Einstein condensate, also A called the fifth state of matter, appears only at temperatures reaching the absolute zero (T = 0 K = -273,15 °C).



At $T \approx 0$ K, an ensemble of ultracold atoms may occupy the same single-particle quantum state: all atoms behave in the same way, creating what we call the Bose-Einstein condensate.



NIVERSITAT DE BARCELONA

MARÍA Institut de Ciències del Cosmos

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