



Sommerfeld Theory Colloquium

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Heisenberg-Euler Lagrangian and Discovery of the Magnetic Gluon Condensation

In the classical field theory the Lagrangian encapsulates the relevant classical equations of motion and the symmetries of the system. In the quantum field theory the effective Lagrangian encodes quantum corrections to the classical Lagrangian, corrections that are induced by quantum fluctuations and vacuum polarisation. It allows a direct probe of the vacuum structure of the quantum field theories, the Gauge Field Theories and of the Standard Model of elementary particles. The seminal works of Sauter, Euler and Kockel, Heisenberg and Euler, Schwinger, Coleman and Weinberg produced the paradigm for the entire field by predicting and computing the scattering of light by light, determining the nonlinear corrections to the Electrodynamics, discovering the phenomenon of Dynamical Symmetry breaking and understanding Quantum Anomalies. In Quantum Chromodynamics it allows to predict Magnetic Gluon Condensation. The lecture will contain review of these works and discussion of the future progress.

Wednesday, 18 April 2018, 16:15h, Room A348/349, Theresienstr. 37 / III

Prof. V. Mukhanov