Universality of hard-loop action

Monday, 15 September 2014 17:00 (30 minutes)

The effective action obtained within the hard loop approximation determines, in particular, a spectrum of collective excitations which is a fundamental characteristics of any many-body system. We show that the actions of gauge bosons, fermions and scalars are of unique forms for a whole class of a gauge theories such as QED, scalar QED, SUSY QED, QCD, super Yang-Mills, irrespective of a field content and some specific interactions. Consequently, long-wave or semiclassical features of plasma systems governed by these theories such as collective excitations are almost identical. An origin of the universality is discussed.

Primary authors: CZAJKA, Alina (Jan Kochanowski University);   MROWCZYNSKI, Stanislaw (Jan Kochanowski University)

Presenter: CZAJKA, Alina (Jan Kochanowski University)