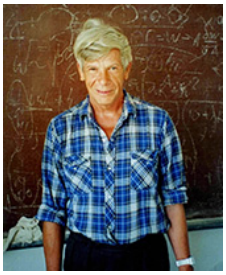

Contribution ID: **35** Type: **not specified**

Tachyon condensation in a chromomagnetic background field and the groundstate of QCD

Monday, 10 October 2022 17:10 (25 minutes)

In an attempt toward a better understanding of the vacuum of QCD I propose a condensation of the tachyonic mode in SU(2). In the Savvidy vacuum, this mode is known to be unstable. In an approximation where the gluon fields are reduced to the tachyonic mode, which can be considered as a complex scalar field in (1+1)-dimensions, I apply the methods known from the Higgs model and finite temperature field theory. The symmetry is spontaneously broken by a condensate of tachyons, i.e. of the unstable mode. As a result, I obtain a stable vacuum state with energy below zero. The energy of this state is a minimum in two parameters, the chromomagnetic background field, and the condensate. Raising the temperature, I observe a phase transition; and a restoration of the symmetry. (based on arxiv 2207.08711)

Primary author: BORDAG, M. (BLTP JINR Dubna)

Presenter: BORDAG, M. (BLTP JINR Dubna)

Session Classification: Section A

Track Classification: Section B: Quantum field theory methods in elementary particle physics