

A unified model of dark energy, dark matter and baryogenesis (TH Colloquium)

Wednesday, 24 June 2020 14:00 (1 hour)

TH Colloquium: <https://indico.cern.ch/event/925915/>

Zoom meeting: <https://cern.zoom.us/j/97792556765?pwd=TVRXTkpQKytiGN4RkxKYzJKUHhWZz09>

Virtual Axion Institute: The discussion on this talk can be continued in Robert's virtual guest office. <https://mattermost.web.cern.ch/axions/channels/robert-brandenberger>

Abstract: I discuss a model involving a self-interacting complex axion field whose imaginary part, a pseudo-scalar axion, couples to the instanton density of gauge fields including the hypermagnetic field. This coupling may give rise to baryogenesis in the early universe. After tracing out the gauge and matter degrees of freedom, a non-trivial effective potential for the imaginary part of the axion field is obtained. It is proposed that oscillations of this component around a minimum of its effective potential can be interpreted as Dark Matter. The absolute value of the axion field rolls slowly towards infinity. At late times, it can give rise to Dark Energy.

Presenter: BRANDENBERGER, Robert (McGill University)

Session Classification: Seminar