Axions in the Lab and in the Cosmos

Report of Contributions

https://indico.cern.ch/e/767272
Relic abundance of QCD axion DM

Monday, 15 July 2019 15:00 (1 hour)

Presenter: VILLADORO, Giovanni
Outstanding problems in axion cosmology

Thursday, 18 July 2019 10:00 (1 hour)

Presenter: MARSH, David J. E.
A model-building perspective on axion couplings

Wednesday, 17 July 2019 10:00 (1 hour)

Presenter: KIM, Jihn E. (Kyung Hee University)
Overview of lab searches for axions

Tuesday, 16 July 2019 15:00 (1 hour)

Presenter: RINGWALD, Andreas (Deutsches Elektronen-Synchrotron DESY)
The Axion Echo method and the Big Flow

Electromagnetic radiation with angular frequency half the axion mass stimulates the decay of dark matter axions and produces an echo, i.e. faint electromagnetic radiation traveling in the opposite direction. Thus one may search for axion dark matter by sending out to space a powerful beam of electromagnetic radiation and listening for its echo. The method is particularly attractive if the Earth is bathed in a cold axion flow of known direction. The Caustic Ring Model of the Milky Way halo predicts such a cold flow with high local density, called the Big Flow. The direction of the Big Flow is determined from triangular features in the IRAS and GAIA maps of the Milky Way with a precision of order 0.5 degree of arc.

Presenter:  SIKIVIE, Pierre (University of Florida)
The QCD axion at aLIGO

Friday, 19 July 2019 10:00 (1 hour)

Presenter:  BARYAKHTAR, Maria
Astro/cosmo probes of axions/ALPs

Monday, 15 July 2019 10:00 (1 hour)

Presenter: ARVANITAKI, Asimina
Higgs portal with an ALP

Tuesday, 16 July 2019 10:00 (1 hour)

Presenter: JEONG, Kwang Sik
Discussion: Dynamical relaxation in a fuzzy dark matter halo

Presenter: TREMAINE, Scott
Discussion: relic abundance of the QCD axion

Discussion of recent achievements and open questions in the calculation of the relic abundance of the QCD axion, from misalignment to particle emission from strings to miniclusters.
Discussion: Astrophysical signatures of/bounds on axions

Friday, 19 July 2019 11:00 (1 hour)

Presenters: MIRIZZI, Alessandro; HAMAGUCHI, Koichi
Discussion: Dynamical relaxation in a fuzzy dark matter halo

Monday, 15 July 2019 13:30 (1 hour)

Presenter: TREMAINE, Scott
Discussion: Relic abundance of axions

Monday, 15 July 2019 16:00 (1 hour)

Presenter: BUSCHMANN, Malte (JGU Mainz)
Discussion: ALP cosmology and its experimental implications

Tuesday, 16 July 2019 11:15 (1 hour)

Presenter: TAKAHASHI, Fuminobu
Test

Session Classification: Discussion
Discussion: Axion model-building

Wednesday, 17 July 2019 11:00 (1 hour)

Presenter: HARIGAYA, Keisuke (Institute for Advanced Study)
Discussion: Substructure in an axion dark matter halo — from vortices to black hole hair

Thursday, 18 July 2019 13:30 (1 hour)

Presenter: HUI, Lam (Columbia University)