



Contribution ID: 36

Type: **not specified**

Search for high frequency GWs with bulk acoustic cavities

Thursday, 14 September 2023 14:20 (20 minutes)

Cryogenic Bulk Acoustic Wave (BAW) cavities can be used as narrow band and high resolution antennas for high frequency GWs (1 MHz - 1 GHz). Such GWs might be produced by several cosmological sources: from the merging of compact binary objects to the annihilation of QCD axions close to a black hole. Based on studies conducted at University of Western Australia, I'll describe how: a BAW can be sensitive to GW, lattice vibrations can be converted and amplified as an electrical signal, the BAW sensitivity evolves as a function frequency and operating temperatures. Finally, a preliminary characterisation of commercially available quartz BAWs, conducted at University of Milano Bicocca, will be reported along with plans towards the construction of an array of optimized antennas providing wide-band sensitivity in a range from 1 MHz to a few tens of MHz."

e-mail

raffaele.gerosa@cern.ch

Primary author: GEROSA, Raffaele (University and INFN of Milano Bicocca)

Presenter: GEROSA, Raffaele (University and INFN of Milano Bicocca)