



Contribution ID: 16

Type: **not specified**

Electromagnetic vacuum densities around a cosmic string in de Sitter spacetime

Wednesday, 18 September 2019 15:30 (30 minutes)

We evaluate the vacuum expectation values (VEVs) of the electric and magnetic fields squared and of the energy-momentum tensor for the electromagnetic field around a cosmic string on the background of $(D+1)$ -dimensional locally de Sitter spacetime. It is assumed that the field is prepared in the Bunch-Davies vacuum state. The topological contributions in the VEVs are explicitly separated. It is shown that in spatial dimensions other than 3 the part of the vacuum energy-momentum tensor induced by the cosmic string, in addition to the diagonal components, has a nonzero off-diagonal component corresponding to the energy flux along the radial direction. The asymptotic behavior of the VEVs is discussed near the string and at proper distances larger than the curvature radius of the de Sitter spacetime.

Primary authors: Prof. SAHARIAN, Aram (Yerevan State University); Dr MANUKYAN, Vardan (Shirak State University); Dr SAHARYAN, Nvard (Yerevan State University)

Presenter: Dr MANUKYAN, Vardan (Shirak State University)