ID de Contribution: **163** Type: **Non spécifié**

Axion-like particles as Cold Dark Matter by the misalignment mechanism with the PQ symmetry unbroken during inflation.

Axion-like particles (ALPs), the QCD axion, are well motivated candidates for Cold Dark Matter. Such models may be divided into two classes depending on whether the associated U(1) symmetry is broken or not during inflation. The latter case is usually considered to be quite simple with relic density depending only on the corresponding decay constant and with no constraints from the known bounds on isocurvature perturbations. We will show that the situation is much more
complicated. We find that many such models predict unacceptable isocurvature perturbations. Moreover, the relic density may strongly depend on the details of a considered model (quite often in a more complicated way than in the case of models with U(1) symmetry broken during inflation). We will discuss conditions which should be fulfilled by ALP models with U(1) unbroken during inflation to be phenomenologically interesting.

Orateur: KOZOW, Pawel (Faculty of Physics University of Warsaw)

Classification de Session: Parallel Session 1