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## **Gravity waves from nonlinear axion-like particle dynamics**

Axion-like particles (ALPs) play an important role for inflationary model building, as well as are well motivated dark matter candidates. The out-of-equilibrium initial conditions, combined with their possibly nontrivial potentials, allow for a rich nonlinear dynamics of such fields in the early universe.

We consider coherent oscillations of an ALP field in a wiggly potential and investigate the scenario when the fluctuations on top of the homogeneous field are dynamically amplified, leading to its complete fragmentation. If the potential contains several local minima, separated by barriers, transitions to lower minima can be induced via bubble nucleation and we study the nonthermal nature of this process and the impact of fragmentation. The above mentioned dynamics is accompanied by the production of a stochastic gravitational wave background, possibly within reach of future detectors.

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**Primary author:** CHATRCHYAN, Aleksandr (Deutsches Elektronen-Synchrotron DESY)

**Presenter:** CHATRCHYAN, Aleksandr (Deutsches Elektronen-Synchrotron DESY)

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