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## **Resonant backreaction in axion inflation**

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Axion inflation entails a coupling of the inflaton field to gauge fields through the Chern-Simons term. This results in a strong gauge field production during inflation, which backreacts on the inflaton equation of motion. We show that this strongly non-linear system generically experiences a resonant enhancement of the gauge field production, resulting in oscillatory features in the inflaton velocity as well as in the gauge field spectrum. The gauge fields source a strongly enhanced scalar power spectrum at small scales, exceeding previous estimates. For appropriate parameter choices, the collapse of these over-dense regions can lead to a large population of (light) primordial black holes with remarkable phenomenological consequences.

**Primary author:** WELLING, Yvette (DESY)

Co-authors: WESTPHAL, Alexander (DESY); DOMCKE, Valerie (DESY); GUIDETTI, Veronica (Bologna)

Presenter: WELLING, Yvette (DESY)

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