

## Hunting Inflaton at FASER

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We consider the nonminimal quartic inflation in a classically conformal  $U(1)_X$  extended SM. We show that if the inflaton mass and its mixing angle with the SM Higgs field lie in a suitable range, the FASER experiment can search for the inflaton at the High Luminosity (HL)-LHC. Also because of the classical conformal invariance, the inflationary predictions and the LHC search for the  $U(1)_X$  gauge boson ( $Z'$ ) resonance are complementary. Therefore, three independent experiments, namely, the inflaton search at the FASER, the  $Z'$  boson resonance search at the HL-LHC and the precision measurement of the inflationary predictions, are complementary to test our inflation scenario.

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