"Strong phase at colliders--new physics opportunities in Higgs physics searches"

Abstract: In this talk, I will present several interesting physics cases where the strong phase from QCD plays important role in (B)SM heavy particle productions at hadron colliders. The strong phase in these cases does alter the resonance signatures a lot and provide more physics insights to the underlying physics. We analyze the line shapes of Higgs bosons in several well-motivated beyond the standard model physics models. Commonly existing additional contributions to the gluon-gluon-scalar coupling change the relative phases of the signal and background amplitudes, inducing new opportunities in this channel. We further outline various methods to improve the LHC search in various search channels and the new windows opened up for BSM physics.