

## Interference effects in resonant di-Higgs production at the LHC

*Wednesday 23 October 2024 18:10 (20 minutes)*

In this talk I will present an investigation into finite width and interference effects in di-Higgs production at the LHC. I will focus on the real Higgs singlet extension of the Standard model where di-Higgs production is enhanced by resonant decays of an additional heavy scalar into two SM-like Higgs bosons. The study focuses on the effect of the interference between non-resonant and resonant diagrams and finds this to have a non-negligible effect on the cross-sections and differential distributions at the LHC. I will also present a new tool utilizing a matrix-element reweighting method allowing interference effects to be modelled in a computationally efficient way.

**Author:** WINTERBOTTOM, Daniel (Imperial College (GB))

**Co-authors:** FUCHS, Elina (Leibniz Universitaet Hannover (DE)); Mr FEUERSTAKE, Finn (Leibniz Universitaet Hannover (DE)); ROBENS, Tania Natalie (Rudjer Boskovic Institute (HR))

**Presenter:** WINTERBOTTOM, Daniel (Imperial College (GB))

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