

# QCD@LHC2022

28 November 2022 to 2 December 2022  
IJCLab Orsay, France

Contribution ID: 63

Type: not specified

## Precision Predictions for Scalar Leptoquark Pair Production at the LHC

*Friday 2 December 2022 09:00 (15 minutes)*

In my talk, I will present precision predictions for the production of scalar leptoquarks at the LHC, evaluated at next-to-leading order in QCD and improved by the resummation of soft-gluon radiation at next-to-next-to-leading-logarithmic accuracy. Apart from QCD contributions, included are the lepton  $t$ -channel exchange diagrams relevant in the light of the recent  $B$ -flavour anomalies. The results exhibit an interesting interplay between the different contributions, affected considerably by the choice of parton distribution functions, and the net effect on a cross section turns out to be very non-generic for a variety of benchmark scenarios favoured by the anomalies. These predictions consist of the most precise leptoquark cross section calculations available to date and are necessary for the best exploitation of leptoquark LHC searches.

### Declaration

I certify that I have checked that I am authorised to submit the abstract with the listed co-authors with their current affiliations

### Change of Speaker

I understand that change of speaker is allowed provided that no participant gives more than one talk. Otherwise, we will ask the speaker to choose between one or the other abstract to be presented.

**Primary authors:** KULESZA, Anna (University of Muenster); FUKS, Benjamin (Laboratoire de Physique Théorique et Hautes énergies (LPTHE), UMR 7589, Sorbonne Université et CNRS); BORSCHENSKY, Christoph (Karlsruhe Institute of Technology); SCHWARTLÄNDER, Daniel (Universität Münster)

**Presenter:** BORSCHENSKY, Christoph (Karlsruhe Institute of Technology)

**Session Classification:** Parallel B - WG8: 1

**Track Classification:** WG8: QCD for BSM studies