## Portoroz 2015: Particle Phenomenology From the Early Universe to High Energy Colliders



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## **Cornering Scalar Leptoquarks at LHC**

Tuesday 7 April 2015 09:28 (23 minutes)

I will address implications of large lepton-quark-leptoquark couplings for direct leptoquark searches at Large Hadron Collider. It will be shown that flavour physics constraints allow for sizeable couplings of leptoquarks to the Standard Model fermions if these interact exclusively with charged leptons and quarks of the same generation. The leptoquark production mechanisms at LHC will be thoroughly discussed to demonstrate the importance of inclusion of a t-channel pair production and, in particular, a single leptoquark production if and when the leptoquark couplings are large. I will finally present a recast of an existing CMS search at LHC for the second generation leptoquark that yields the best direct limit to date on Yukawa coupling of the second generation leptoquark that couples to a muon and a strange quark.

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