



ID de Contribution: 18

Type: **Theoretical**

## New physics prospects in the rare $B_c \rightarrow D_s \ell^+ \ell^-$ decay

*lundi 18 août 2025 14:50 (15 minutes)*

This talk will be on the  $U_1$  leptoquark (LQ) prospects in the rare  $B_c \rightarrow D_s \ell^+ \ell^-$  decay channel, mediated by the FCNC  $b \rightarrow s \ell^+ \ell^-$  transition. Complex leptoquark couplings are considered which will allow for possible new CP violation sources. These couplings are constrained using current experimental data in the  $b \rightarrow s \ell \ell$  sector. We work with a few new physics scenarios involving the Wilson coefficients  $C_9^{(\prime)}$ (NP) and  $C_{10}^{(\prime)}$ (NP), and make predictions of the CP asymmetry for the  $B_c \rightarrow D_s \ell^+ \ell^-$  mode. I will discuss on possible sizeable CP asymmetry in some of the LQ scenarios, and also the impact of the LQ couplings on the branching fraction and the LFU ratio for these modes within the considered LQ scenarios.

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**Classification de Session:** B-Decays and CP Violation

**Classification de thématique:** Rare B Decays