

## Flavour anomalies meet flavour symmetry

*Wednesday 29 June 2022 10:00 (30 minutes)*

We propose an extension of the Standard Model with a leptoquark and a flavour symmetry that is the direct product of a dihedral and a cyclic group. We show that both the flavour anomalies in  $R(D)$  and  $R(D^*)$  and of the anomalous magnetic moment of the muon as well as the charged fermion mass hierarchy and the quark mixing pattern can be explained. At the same time, constraints imposed from e.g. the non-observation of charged lepton flavour violating processes can be passed in this model for masses of the leptoquark as small as 2 TeV. The flavour structure of the couplings between the leptoquark and the Standard Model fermions is determined by a residual group of the flavour symmetry. Only four spurions, acquiring different vacuum expectation values, are necessary in order to achieve the desired form of the leptoquark couplings and of the charged fermion mass matrices. We study the phenomenology of this model with analytic estimates as well as perform numerical scans of its parameter space.

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