## Theory challenges for LHC physics



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## New Physics signals in Vector quark models

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We investigate the vector quark models which include the addition of a vector isosinglet quark to the Standard Model. In these models, the full CKM matrix is larger than  $3 \times 3$ . A signal of the new physics will be the non-unitarity of the  $3 \times 3$  CKM matrix. Using present flavor physics data, we perform a combined fit to this full CKM matrix, looking for signals of new physics (NP). We find that these models are very strongly constrained. There are no hints of NP in the CKM matrix.

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