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Searching for doubly-charged Higgs bosons in the Georgi-Machacek model at the LHeC

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The Georgi-Machacek (GM) model is one of many beyond standard model scenarios
with an extended scalar sector which can group under the custodial SU(2) symmetry
into a fiveplet, a triplet, and two singlets. We study the prospects for detecting the doubly-charged Higgs boson ($H_5^{\pm\pm}$) through the vector boson fusion with same-sign leptons decay channel at the Large Hadron Electron Collider (LHeC).
The discovery significance and necessary luminosity are presented as a function of the triplet vaccum expectation value.

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