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## The Inert Doublet Model in the light of LHC and astrophysical data

The Inert Doublet Model (IDM) is one of the simplest extension of the Standard Model in which the scalar sector is augmented by a second scalar doublet. This second doublet does not contribute to Electroweak Symmetry breaking, but due to an exact  $Z_2$  symmetry gives rise to the dark sector with stable dark matter candidate. After the discovery of the Higgs boson and fixing the value of its mass, the model has still 5 free parameters, which are however subject to a number of both theoretical and experimental constraints. In our work we present the updated results on the allowed parameter space of the IDM taking into account newest experimental results from LHC and astrophysical experiments. We also give insight on the possibilities and strategies for the direct search for IDM in new LHC run.

### additional information

Work done in collaboration with Tania Robens and Maria Krawczyk.

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