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Update on scalar singlet dark matter from GAMBIT

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The arguably most simple model for WIMP dark matter is a scalar singlet that couples to the Standard Model sector via the Higgs portal. It is a simple example for beyond-the-Standard Model (BSM) physics, and can be tested with collider, direct, indirect and cosmological probes. In this talk, I will present the first analysis results for the scalar singlet dark matter model that we obtained with GAMBIT (Global And Modular BSM Inference Tool). GAMBIT is a new code that provides an extensive and flexible framework for global scans. Already now, it integrates accurate likelihood functions for a number of direct detection (like XENON and LUX) and indirect detection (like Fermi LAT and IceCube) experiments. It is easily extensible and allows a seamless integration of popular existing theory codes like DarkSUSY and MicrOmegas. Besides presenting results that we obtain for scalar singlet dark matter and generic WIMP models, this talk will provide an overview over the existing and planned dark matter functionality of GAMBIT.

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