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Latest results of searches of Higgs Boson decays into Dark Matter particles in the ATLAS experiment

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Search for Dark Matter (DM) particles is one of the most interesting problem in modern physics. Light dark matter particles may be produced in decays of the Higgs boson that would appear invisible to the detector. “Higgs portal” models predict decay of Standard Model Higgs boson into pair of WIMP particles, which are strong candidates for DM. The production of Higgs Boson in vector boson fusion process (VBF+MET), followed by Higgs decay into DM particles is the most promising channel for the search due to high signal sensitivity. This talk presents latest results for VBF+MET and statistical combination of Higgs invisible searches obtained at ATLAS Large Hadron Collider experiment using data collected for Run II ($\sqrt{s} = 13$ TeV).

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