



Contribution ID: 309

Type: **Talk**

## Multimessenger searches for WIMPs with suppressed interactions

*Tuesday 8 December 2015 14:42 (21 minutes)*

WIMPs with suppressed interactions can present observational challenges at lowest order. We study Majorana DM interacting via an axial-vector  $Z'$ , where both the self-annihilation rate and WIMP-nucleon scattering rate are suppressed. By including loop diagrams in the calculation of the self-annihilation rate, we find that the self-annihilation rate is notably enhanced relative to the tree-level rate, and that the branching ratios to gauge-boson final states become non-negligible. We show that the former leads to enhanced constraints on the gamma-ray flux from Fermi and HESS, and the latter leads to stronger constraints on the spin-dependent WIMP-nucleon scattering rate derived from IceCube observations of the neutrino flux from the Sun.

**Authors:** KATZ, Andrey (CERN); RIOTTO, Antonio Walter (Universite de Geneve (CH)); RACCO, Davide (Universite de Geneve (CH)); MORGANTE, Enrico (Universite de Geneve (CH)); RAMEEZ, Mohamed (Universite de Geneve (CH)); JACQUES, Thomas David (Universite de Geneve (CH))

**Presenter:** JACQUES, Thomas David (Universite de Geneve (CH))

**Session Classification:** 05 - Dark matter