

Quantum field theory meets gravity



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Wino potential and Sommerfeld effect at NLO

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For heavy electroweak dark matter, the resummation of large quantum corrections due to long-range potentials (the “Sommerfeld effect”) is crucial in determining the precise annihilation cross-section. In this talk, I will consider the one-loop correction to the potential which provides the leading non-relativistic correction to the Sommerfeld effect in the case of wino or wino-like dark matter particles χ_0 . I will discuss the impact of this correction on the $\chi_0\chi_0$ annihilation cross-section relevant for indirect detection and the resulting shifts on the zero-energy S-wave resonances.

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