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Toroidal dipole moment of the lightest neutralino in the CMSSM

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Abstract content

We study the toroidal dipole moment of the lightest neutralino in the constrained Minimal Supersymmetric Standard Model. The toroidal dipole moment is the only electromagnetic property of the neutralino. Since the neutralino is the LSP in many versions of the MSSM and therefore a candidate for dark matter, its characterization through its electromagnetic properties is important both for particle physics and for cosmology. We perform a scan in the parameter space of the cMSSM and find that the toroidal dipole moment is below the experimental bound and different from zero, it even reaches a value around 103 GeV-2 in a certain region of the parameter space.

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