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Superdense dark matter clumps

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Amplification of dark matter annihilation signal due to the small-scale clumpiness of the Galactic halo provides the unique possibility of the indirect dark matter particle identification. We describe a cosmological scenario for formation of superdense dark matter clumps from superheavy particles. As an illustrative example it is considered the case of superheavy neutralino. The small-scale superdense clumps may form from a non-standard spiky spectrum of perturbations during the radiation dominated era. These clumps are not destroyed by tidal interactions and can be extremely dense. Superdense clumps can be observed by the gamma-radiation from dark matter annihilations and by the gravitational wave detectors, while the production of primordial black holes constrains this scenario.

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