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Revisiting clusters of PBHs as dark matter candidates

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In this paper we revisit Primordial Black Holes (PBHs) clusters as Dark Matter (DM) candidates. Here we present continuation of our previous work, extending the analysis. The analysis is devoted to re-consideration of constraint on PBH abundance from stellar cluster observation in dwarf galaxy Eridanus II. We take into account non-trivial density profile of PBH clusters in order to re-estimate the energy exchange between PBHs and stars. Here we keep momentum approximation to strengthen the constraint making it robust. The impact of density profile concludes in the form of Coulomb logarithm, making analysis trivial, but showing important result. It is shown that density profile matters and energy exchange can be suppressed due to it considerably, making clusters of PBHs viable DM candidates, if their core radius is sufficiently large.

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