

## THE MISSING MASS AND THE SOLAR NEUTRINO PROBLEM

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ABSTRACT. If the halo of our galaxy is composed of weakly interacting particles, they will be captured by the sun.<sup>1</sup> If the mass of these particles exceed 5 proton masses, they will remain in the Sun where they will serve as an effective means of transporting energy in the solar core. They will make the Sun's core more nearly isothermal, thus decreasing the rate of the PPIII reaction.<sup>2,3</sup> If the halo is composed of particles with masses between 5 and 10 GeV and cross section between  $10^{-34}$  and  $10^{-37}\text{cm}^2$ , this mechanism could resolve the solar neutrino problem.<sup>4</sup> If these particles exist, they could be detected by a low temperature detector.<sup>5</sup> However, if the particles annihilate in the Sun, (e.g. Photinos or Scalar Neutrinos), their number density will be too low.<sup>6</sup>

### References

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- <sup>6</sup>Krauss, L.M., Freese, K., Spergel, D.N. and Press, W.H. *Ap.J.*, 299, 000 (1985).