

Astrophysical factors of $^{12}\text{C} + ^{12}\text{C}$ fusion extracted using the Trojan horse method

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Carbon-carbon burning plays an important role in many stellar environments. Recently, Tumino *et al.* [1] reported a sharp rise of the astrophysical S factor for carbon-carbon fusion determined using the indirect Trojan horse method. We demonstrate that the rise at low energies seen in the aforementioned work is an artifact of using an invalid plane-wave approximation that neglects the Coulomb interactions between charged particles. Our analysis shows that such a rise disappears if the Coulomb (or Coulomb-nuclear) interactions in the initial and final states are included [2].

[1] Tumino *et al.* Nature **557**, 687 (2018).

[2] A.M. Mukhamedzhanov, D.Y. Pang, and A.S. Kadyrov, Phys. Rev. C **99**, 064618 (2019).