

Alpha-muon sticking and chaos in muon-catalysed "in flight" $d-t$ fusion

Sachie Kimura^a and Aldo Bonasera^{a,b}

^a *Laboratori Nazionali del Sud, INFN, via Santa Sofia, 62, 95123 Catania, Italy*

^b *Libera Università Kore di Enna, 94100 Enna, Italy*

We discuss the alpha-muon sticking coefficient in the muon-catalysed "in flight" $d-t$ fusion in the framework of the Constrained Molecular Dynamics model [1, 2]. Especially the influence of muonic chaotic dynamics on the sticking coefficient is brought into focus. The chaotic motion of the muon affects not only the fusion cross section but also the $\mu - \alpha$ sticking coefficient. Chaotic systems lead to larger enhancements with respect to regular systems because of the reduction of the tunneling region. Moreover they give smaller sticking probabilities than those of regular events. By utilizing a characteristic of the chaotic dynamics one can avoid losing the muon in the μCF cycle. We propose the application of the so-called "microwave ionization of a Rydberg atom" [3] to the present case which could lead to the enhancement of the reactivation process by using X-rays.

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