Abstract Submitted
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Toward the first ab initio description of the deuterium-tritium fusion[1] SOFIA QUAGLIONI, PETR NAVRATIL, Lawrence Livermore National Laboratory — We are building a new capability to describe light-ion fusion reactions from first principles, known as *ab initio* NCSM/RGM approach [1,2]. Using a recently developed formalism based on nucleon-nucleus basis states, we have completed a promising preliminary study of nucleon-nucleus scattering, particularly $n-^4$He scattering below the $d+^3$H threshold [1,2]. Now we are developing the deuterium-nucleus formalism that coupled with the nucleon-nucleus basis will allow us the first *ab initio* calculation of the ^{3}H$(d,n)^4$He fusion. We present recent results and work in progress.

[1] S. Quaglioni and P. Navratil, Phys. Rev. Lett. **101**, 092501 (2008).
[2] S. Quaglioni and P. Navratil, Phys. Rev. C **79**, 044606 (2009).

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