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Various attempts have been made to describe the heavy-ion fusion excitation functions across a wide energy region. The Wong formula includes the effects of a quantum mechanical tunneling through the Coulomb barrier and can reproduce the excitation function at the range larger than 0.1 mb. The beauty of the Wong formula lies in its simple, analytical form with only three parameters, while other more sophisticated theoretical models calculate the fusion cross sections with numerical technology. Here We discuss two formulas, which keep the simple, analytical forms, and have significantly performance across the whole energy region.

See attachment

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