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**Collective and shielding effects on nuclear fusion reaction in non-ideal plasmas** MYOUNG-JAE LEE, YOUNG-DAE JUNG, Hanyang University  
— The nuclear fusion reaction process is investigated in partially ionized nonideal plasmas. The effective pseudopotential model taking into account the collective and plasma shielding effects is applied to describe the interaction potential in nonideal plasmas. The analytic expressions of the Sommerfeld parameter, the fusion penetration factor, and the cross section for the nuclear fusion reaction in nonideal plasmas are obtained as functions of the nonideality parameter, Debye length, and relative kinetic energy. It is found that the Sommerfeld parameter is suppressed due to the influence of collective nonideal shielding. It is also found that the fusion penetration factors in nonideal plasmas represented by the pseudopotential model are always greater than those in ideal plasmas represented by the Debye-Hckel model. In addition, it is shown that the collective nonideal shielding effect on the fusion penetration factor decreases with an increase of the kinetic energy.

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