

Microscopic Optical Potential Model for Analysis of the $^{12,14}\text{Be}+^{12}\text{C}$ experimental data

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The microscopic model of optical potential (OP) is applied for calculations of the elastic scattering of $^{12,14}\text{Be}+^{12}\text{C}$ at energies 679 MeV and 796 MeV. The real part of such OP is constructed within the double folding model including the exchange term while the imaginary part is based on the high energy approximation theory [1–3]. OP depends on the nuclear density distributions of $^{12,14}\text{Be}$ and thus the microscopic models of them [4, 5] were tested in our study. The differential and the reaction cross sections are calculated with help of computer code DWUCK4 [6]. Effect of contribution of the inelastic channel on agreement with experimental data is analysed. Possibility to explain of the stripping processes is also discussed.

References

- [1] V.K. Lukyanov, E.V. Zemlyanaya, and K.V. Lukyanov, *Phys. At. Nucl.* **69** (2006) 240
- [2] D.T. Khoa and G.R. Satchler, *Nucl. Phys. A* **668** (2000) 3
- [3] K.V. Lukyanov, JINR Comm. R11-2007-38, Dubna, 2007
- [4] J. Carlson, et al, *Rev. Mod. Phys.* **87** (2015) 1067
- [5] K. Varga, Y. Suzuki, and I. Tanihata, *Phys. Rev. C* **52** (1995) 3013
- [6] P.D. Kunz and E. Rost, in *Computational Nuclear Physics* Vol.2 (Eds. Langanke K. et al., Springer-Verlag, 1993) 88