

DESCRIPTION OF CHARGE-EXCHANGE REACTIONS IN TIME-DEPENDENT 2D MODEL

Wednesday, 13 July 2022 11:10 (20 minutes)

The experimental data on the charge-exchange reactions $^{45}\text{Sc}(^3\text{He,t})^{45}\text{Ti}$, $^{194}\text{Pt}(^3\text{He,t})^{194}\text{Au}$ [1, 2] requires development of microscopic models of such processes. The microscopic approach based on the time-dependent Schrödinger equation for the wave function of the independent nucleons [3] does not take into account proton-neutron interaction and correlations. Simultaneous transfer of a proton from the projectile nucleus to the target nucleus and transfer of a neutron in the backward direction is studied using quantum two-body two-dimensional (2D) time-dependent model [4].

1. N.K. Skobelev, A.A. Kulko, Yu.E. Penionzhkevich, E.I. Voskoboynik, V. Kroha, V. Burjan, Z. Hons, J. Mrazek, Š. Piskoř, and E. Šimečkova, *Bull. Russ. Acad. Sci.: Phys.* 77, 795 (2013).
2. N.K. Skobelev, Yu.E. Penionzhkevich, E.I. Voskoboynik, V. Kroha, V. Burjan, Z. Hons, J. Mrazek, Š. Piskoř, E. Šimečkova, and A. Kugler, *Phys. Part. Nucl. Lett.* 11, 114 (2014).
3. V.V. Samarin, Yu.E. Penionzhkevich, M.A. Naumenko, and N.K. Skobelev, *Bull. Russ. Acad. Sci.: Phys.* 82, 637 (2018).
4. V.V. Samarin, and S.M. Samarina, *Surface Investigation* 14, 621 (1998).

The speaker is a student or young scientist

No

Section

1. Experimental and theoretical studies of nuclear reactions

Primary author: SAMARIN, Viacheslav (Joint Institute for Nuclear Research)

Presenter: SAMARIN, Viacheslav (Joint Institute for Nuclear Research)

Session Classification: Poster session