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SHORT-RANGE NN CORRELATIONS AND QUASI-DEUTERON CLUSTERS IN THE REACTION ^{12}C+p$\longrightarrow^{10}$A+ pp+N

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Short range correlated (SRC) NN pairs play an important role in structure of atomic nuclei and are studied in many nuclear centers using electron beams [1]. A new step was done at BM@N in JINR [2] where the reaction ^{12}C+p$\longrightarrow^{10}$A+pp+N is studied using the ^{12}C beam at energy of 4 GeV/nucleon at kinematics providing interaction of the hydrogen target with the SRC pair in the ^{12}C. For theoretical analysis of the SRC effects in the reaction ^{12}C+p$\longrightarrow^{10}$A+pp+N it seems natural to use a properly modified approach [3] developed earlier (see Ref. [4] and references therein) to describe the quasi-elastic knock-out of fast deuterons from the light nuclei ^{12}C and ^{7,6}Li by protons in the reactions (p,pd) and (p,nd) [5]. An elementary sub-process in the (p,Nd) was the backward elastic scattering of the proton on the two-nucleon clusters p$\{pn\}\longrightarrow$pd and p$\{nn\}\longrightarrow$nd at the proton beam energy 670 MeV. Spectroscopic amplitudes for NN-pairs in the ground state of the ^{12}C nucleus are calculated here within the translation-invariant shell model (TISM) with mixing configurations. The factorization of the two-nucleon momentum distribution over the internal $n_{rel}(q_{rel})$ and the c.m.s. $n_{cm}(k_{c.m.})$ momenta is assumed and at large q_{rel} the squared deuteron (or singlet deuteron) wave function is used for $n_{rel}(q_{rel})$. Relativistic effects in the sub-process p+$\{NN\}$⊠p+N+N are taken into account in the light-front dynamics [3]. We found [6] that the c.m. distribution of the deuteron clusters obtained within the TISM and used in [3], [4] to describe the (p,Nd) data [4] has to be modified considerably to describe the $k_{c.m.}$ distribution of the SCR NN pairs measured in the electron data [1].The ratio of the spin-singlet to spin-triplet $\{NN\}_s$ pairs is calculated.

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Author: UZIKOV, Yuriy (JINR, M.V. Lomonosov Moscow State University, Dubna State University)

Presenter: UZIKOV, Yuriy (JINR, M.V. Lomonosov Moscow State University, Dubna State University)

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