

**Two-Neutron Excitations in Light Neutron
Rich Nuclei Studied via the ($^{18}\text{O}, ^{16}\text{O}$)
Reaction at 84 MeV**

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A study of two-neutron excitations in ^{11}Be and ^{13}B has been done by the ($^{18}\text{O}, ^{16}\text{O}$) transfer reaction at 84 MeV incident energy. This corresponds to about 10 times the Coulomb barrier and is safely low to reduce the influence of deep inelastic mechanism. In such conditions detailed information about nuclear structure can be cleanly accessed. In particular the ($^{18}\text{O}, ^{16}\text{O}$) reaction has been used to study the dynamical effects of pairing correlations in nuclei. Recently, the study of the $^{13}\text{C}(^{18}\text{O}, ^{16}\text{O})^{15}\text{C}$ reaction at 84 MeV has shown the appearance of striking phenomena in the energy spectra of ^{15}C connected with the transfer of the neutron pair. In the experiment performed at INFN-LNS (Italy) the ^{16}O ejectiles has been momentum analyzed by the MAGNEX magnetic spectrometer. The achieved energy resolution (80 keV) has allowed to identify several known excited states in the reaction products. Thanks to the MAGNEX large energy acceptance ($\pm 20\%$), excitation energy spectra has been produced for the first time up to 20 MeV. Angular distributions for the transitions to several states has been measured allowing to draw interesting conclusions on the role of pairing in the structure of ^{11}Be and ^{13}B .