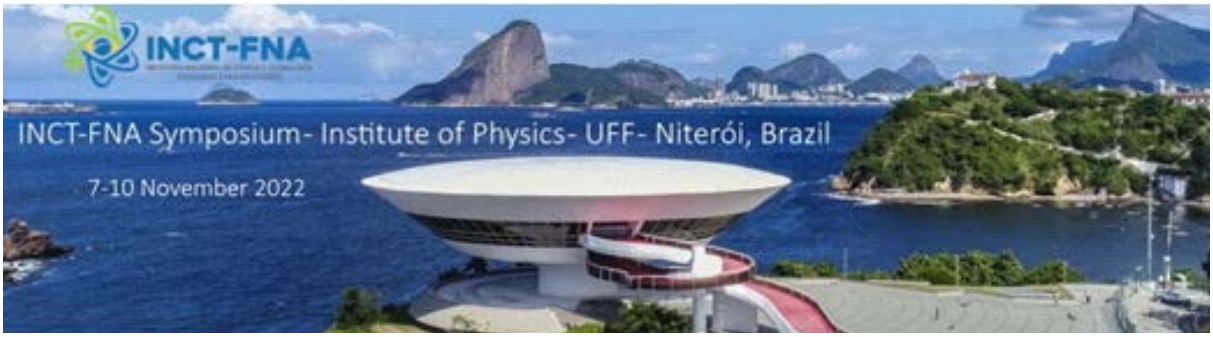

Consistent analysis of the ^{11}B+ ^{120}Sn reaction channels

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The investigation of nuclear reactions taking place at energies around the Coulomb barrier can reveal important information about the structure and dynamics of the colliding nuclei. In particular, reactions involving light cluster projectiles are of ultmost significance for providing details about the reaction mechanisms at energies around the Coulomb barrier. For instance, the typical low binding energy of the clusters may strongly affect the fusion channel [1]. In recent years, much experimental effort has focused on the study of the main processes of such reactions[2-8]. Measurements of angular distributions of elastic and inelastic scattering, transfer, and fusion excitation functions have been performed for many different systems, which in turn support the developing of new theoretical models [9-12]. In foregoing experimental campaigns performed at the Open Laboratory of Nuclear Physics (LAFN), located at the Institute of Physics of the University of São Paulo, several reaction involving ^{120}Sn target has been studied in detail at energies spanning the Coulomb barrier [13–16]. One of then is the experimental angular distributions for the ^{11}B+^{120}Sn reaction measured at energies below and above

the Coulomb barrier (VB(Lab) ~ 35 MeV). Apart from the elastic channel, yields associated to the excitation of ^{11}B and ^{120}Sn have been observed. The corresponding experimental cross sections was compared to the results of coupled channel (CC) calculations, which have been performed on the basis of the São Paulo potential (SPP) [17].

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