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Symmetries of the IBFFM and transfer reactions between odd-odd and even-even nuclei by using IBFFM

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Symmetries of the IBFFM will be discussed and Spectroscopic Amplitudes (SA) in the Interacting Boson Fermion Fermion Model (IBFFM) are necessary for the computation of $0\nu\beta\beta$ decays but also for cross-sections of heavy-ion reactions, in particular, Double Charge Exchange reactions for the NUMEN collaboration, if one does not want to use the closure limit. We present for the first time: the formalism and operators to compute in a general case the spectroscopic amplitudes in the scheme IBFFM from an even-even to odd-odd nuclei, in a way suited to be used in reaction code, i.e., extracting the contribution of each orbital. The one-body transition densities for ^{116}Cd $\rightarrow$ ^{116}In and ^{116}In $\rightarrow$ ^{116}Sn are part of the experimental program of the NUMEN experiment, which aims to find constraints on Neutrinoless double beta decay matrix elements [1].

[1] https://arxiv.org/pdf/2101.05659 submitted to PRC

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