

Abstract Submitted  
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**Ground state properties of the ANNNI model in a transverse field: A quantum fidelity approach** O. BONFIM, University of Portland, BEATRIZ BOECHAT, J. FLORENCIO, Universidade Federal Fluminense — We analyze the ground-state properties of the  $s=1/2$  one-dimensional ANNNI model in a transverse field using the approach of quantum fidelity. We numerically determine the fidelity susceptibility as a function of the transverse field ( $B_x$ ) and the strength of the nearest-next-neighbor interaction ( $J_2$ ) for systems of up to 24 spins. By analyzing the ground-state eigenvectors of finite systems, we expect that at the thermodynamic limit, the system will have an infinite number of phases, a ferromagnetic phase, a kink phase, an infinite number of modulated phases, floating phase and an antiphase.

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