

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Edge excitations in quantum spin chains**<sup>1</sup> CHANGFENG CHEN,  
University of Nevada, Las Vegas — We explore the nature of the topological edge  
excitations in quantum spin chains using both analytical valence-bond-solid analysis  
and numerical simulations. The results reveal new excitation modes that are associ-  
ated with a topological order in the spin chains. Experimental implications will be  
discussed.

<sup>1</sup>This work was supported in part by the Department of Energy.

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Date submitted: 03 Dec 2005

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