1108-81-74   **Sven Bachmann**, **Eman Hamza**, **Bruno Nachtergaele** and **Amanda Young***
(`amyoung@math.ucdavis.edu`), Department of Mathematics, University of California Davis, One
Shields Ave, Davis, CA 95616. *The Dependence of Spectral Properties on the Infinite Boundary for
a Family of Quantum Spin Systems.*

I introduce the class of single species PVBS models defined on a finite, connected subset of $\mathbb{Z}^d$. I will give the finite
volume ground states and provide a criterion for the dimension of the weak-* infinite volume ground state space that is
dependent on the model parameters and the geometry of the infinite volume. Furthermore, I will show that the existence
of the spectral gap in the thermodynamic limit depends on the model parameters and the geometry of the infinite volume
to which we take the limit. (Received December 27, 2014)