

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Study of system-size effects on the emergent magnetic monopoles and Dirac strings in artificial kagome spin ice**<sup>1</sup> ALEJANDRO LEON, Universidad Diego Portales — In this work we study the dynamical properties of a finite array of nanomagnets in artificial kagome spin ice at room temperature. The dynamic response of the array of nanomagnets is studied by implementing a “frustrated celular autómeta” (FCA), based in the charge model. In this model, each dipole is replaced by a dumbbell of two opposite charges, which are situated at the neighbouring vertices of the honeycomb lattice. The FCA simulations, allow us to study in real-time and deterministic way, the dynamic of the system, with minimal computational resource. The update function is defined according to the coordination number of vertices in the system. Our results show that for a set geometric parameters of the array of nanomagnets, the system exhibits high density of Dirac strings and high density emergent magnetic monopoles. A study of the effect of disorder in the arrangement of nanomagnets is incorporated in this work.

<sup>1</sup>The author acknowledge the financial support of Fondecyt program grant 11100045.

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Date submitted: 18 Nov 2011

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