

SEMINARIO
Departamentos de Física Teórica I y II
Universidad Complutense de Madrid

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TITULO: Atomic Quantum Simulation of $U(N)$ and $SU(N)$ Non-Abelian
Lattice Gauge Theories

LUGAR: FACULTAD DE CIENCIAS FÍSICAS UCM

DÍA: 20 de diciembre, 2012 (Jueves)

HORA: 14:30

AULA: Seminario Depto. Física Teórica I, Planta 3ª

ABSTRACT

Using ultracold alkaline-earth atoms in optical lattices, we construct a quantum simulator for $U(N)$ and $SU(N)$ lattice gauge theories with fermionic matter based on quantum link models. These systems share qualitative features with QCD, including chiral symmetry breaking and restoration at non-zero temperature or baryon density. Unlike classical simulations, a quantum simulator does not suffer from sign problems and can address the corresponding chiral dynamics in real time.

arXiv:1211.2242