Test Conference

Report of Contributions

Contribution ID: **3** Type: **not specified**

Test submission from Jennifer

A test submission from Jennifer. Randomly chose a large (~15 MB) pdf file on purpose.

Primary author: HSU, Pai-hsien Jennifer (NTHU)

Presenter: HSU, Pai-hsien Jennifer (NTHU)

Track Classification: Poster section

Contribution ID: **4** Type: **not specified**

Quantum Spin Ices and Topological Phases from Dipolar-Octupolar Doublets on the Pyrochlore Lattice

We consider a class of d- and f-electron systems in which dipolar-octupolar Kramers doublets arise on the sites of the pyrochlore lattice. For such doublets, two components of the pseudospin transform like a magnetic dipole, while the other transforms like a component of the magnetic octupole tensor. Based on a symmetry analysis, we construct and study models of dipolar-octupolar doublets in itinerant and localized limits. In both limits, the resulting models are of surprisingly simple form. In the itinerant limit, we find topological insulating behavior. In the localized limit, the most general nearest-neighbor spin model is the XYZ model. We show that this XYZ model exhibits two distinct quantum spin ice (QSI) phases, that we dub dipolar QSI, and octupolar QSI. We conclude with a discussion of potential relevance to real material systems.

Primary author: HUANG, Yi-Ping (National Tsing Hua University)

Presenter: HUANG, Yi-Ping (National Tsing Hua University)

Track Classification: Poster section

Contribution ID: **6** Type: **not specified**

Some one miss the abstract submission

This is just a simple abstract.

Primary author: DOE, John (National Tsing Hua University)

Presenter: DOE, John (National Tsing Hua University)

Track Classification: Poster section

Contribution ID: **9** Type: **not specified**

Nonclassical Motional State Excitations in Bose-Einstein Condensates

Nonclassical Motional State Excitations in Bose-Einstein Condensates

We present the experimental observation of macroscopic excited motional states in Bose-Einstein condensates. The interference
of the states exhibits a non-smooth density distribution. Unlike the conventional collective oscillation modes, the perturbative approach is not applicable for its dynamics. In our protocol of the trap frequency jumping, the condensate is self excited by lowering the potential well allowing it to release the chemical potential to the kinetic energy. To observe and enhance the obtained effects, we transferred BECs to a quasi-2D potential well with a chirped trap frequency, and then effectively converted the 3D atomic ensemble to a sequence of 2D slices. We have observed the cloud deformation as a non-Gaussian wave packet, and then its revival. The excited atomic cloud undergoes coherent superposition and possesses collective oscillation among excited motional states. The momentum space observation (time-of-flight imaging) provides a strong implication of squeezing. Our method can be applied for the matter-wave propagation and manipulation of nonclassical motional states.

Primary author: Mr SHUKLA, Khemendra (NTHU, Physics)

Presenter: Mr SHUKLA, Khemendra (NTHU, Physics)

Track Classification: Poster section