

## **Fractional chiral edge liquid states on a Kagome lattice**

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Frustrated systems are a rich playground in the search for new exotic phases and excitations, such as spin liquid phases, Dirac strings in a spin-ice, and fractional charges in Kagome lattice antiferromagnets.

Recently, progress of indirect observations of fractional excitations has been made, but their detection remains far from trivial since the controlled excitation and separation of fractional charges is difficult.

We now show that by introducing sharp edges on two sides of a Kagome lattice with interacting bosons, fractional charges appear spontaneously and are located close to the separate edges depending on their chirality. These chiral edge states are reminiscent of phenomena in quantum hall physics and topological insulators, but on the Kagome lattice the topology and chirality is completely controlled by the design of the edges. Moreover, the appearance of the chiral fractional charges with a deconfined interaction gives rise to a new compressible quantum edge liquid phase.