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**Magnon Hall effect in the Shastry Sutherland material** JUDIT ROMHANYI, R GANESH, Institute for Theoretical Solid State Physics, IFW Dresden, D-01069, Germany — We demonstrate that  $\text{SrCu}_2(\text{BO}_3)_2$  (SCBO), the well known realization of the Shastry Sutherland (SS) model, in fact hosts the magnon Hall effect. The SS model has an exact dimer singlet ground state. However, the material SCBO has small Dzyaloshinskii Moriya (DM) interactions which admix a triplet component into the ground state. The resulting state has small magnetic moments and its lowest excitations are three gapped magnon modes, well described by bond wave theory. An applied magnetic field splits these modes and opens band gaps. Surprisingly, we are left with topological magnon bands with non-zero Chern numbers ( $\pm 2$ ). Thus, SCBO supports protected magnonic edge modes and is a magnetic analogue of the integer quantum Hall effect. Ultimately, this topological character stems from the DM interactions which generate a Lorentz force for magnons. We discuss several interesting consequences and possible experimental probes.

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