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Itinerant electron-driven chiral magnetic ordering and spontaneous quantum Hall effect in triangular lattice models IVAR MARTIN, C.D. BATISTA, Theoretical Division, Los Alamos National Laboratory — We study the Kondo Lattice and the Hubbard models on a triangular lattice. We find that at the mean field level, these rotationally invariant models naturally support a non-coplanar chiral magnetic ordering. It appears as a weak-coupling instability at the band filling factor 3/4 due to the perfect nesting of the itinerant electron Fermi surface. This ordering is a triangular-lattice counterpart of the collinear Neel ordering that occurs on the half-filled square lattice. While the long-range magnetic ordering is destroyed by thermal fluctuations, the chirality can persist up to a finite temperature, causing a spontaneous quantum Hall effect in the absence of any externally applied magnetic field.

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