Title	**Spin injection route to the magnon Berry curvature dipole**
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Abstract of the Poster Presentation

Berry curvature of Bloch bands arising in lattice systems can induce a Hall response even in the absence of topology due to the so-called Berry-curvature dipole (BCD). Such a response is universal and, in principle, should occur as a thermal-Hall effect in magnon systems under the application of a temperature gradient. However, this effect intrinsically appears as a nonlinear (second-order) response to the temperature gradient making experimental detection difficult. Here we propose an alternate route to access BCD in magnons [1]. By utilizing the process of spin-injection in conjunction with a temperature gradient, we uncover two previously unreported contributions to the BCD-induced Hall response for magnons—one that is linear in temperature gradient and the other is nonlinear in the magnon chemical potential gradient arising from spin injection. As an added benefit of our approach, both these responses extract distinct moments of the genuine BCD distribution over the magnon bands, as opposed to the recently reported extended BCD in magnons. We use Boltzmann transport theory to derive the expression for the magnon-Hall response in the presence of a thermal gradient and spin injection. Furthermore, using this expression, we offer predictions for the BCD-induced magnon-Hall effect to be observed in experiments for ferro-, antiferro-, and ferrimagnetically ordered models on various lattices, including the honeycomb lattice, the kagome lattice, and the dice lattice.

References:

[1] Atul Rathor, Saurav Kantha, and Arijit Haldar, *Spin injection route to the magnon Berry curvature dipole*, Phy. Rev. B 110, 214441 (2024).