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**Magnon mediated anomalous responses of magnetic systems** VLADIMIR ZYUZIN, Texas AM University , ALEXEY KOVALEV, University of Nebraska - Lincoln — In this talk various anomalous transport properties of ordered insulating magnets will be covered. We will first focus on magnon spin Nernst effects in ferromagnet and antiferromagnet systems. Second, magnetization dynamics driven magnon spin Hall and thermal Hall effects will be discussed. In both cases the effects are driven by non-trivial topology of magnon energy bands and Dzyaloshinskii-Moriya interaction. To demonstrate the effects we will use honeycomb lattice magnetic system, and a toy model of Weyl magnons based on a system of stacked honeycomb magnets.

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