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Designing a study of the Spin Seebeck Effect[1] GRANT RILEY, JASON LIU, GERRI ROBERTS, KRISTEN BUCHANAN, Colorado State University — The Spin Seebeck Effect (SSE) refers to the recently discovered generation of a spin voltage as a result of an applied temperature gradient. The SSE has been observed in ferromagnetic (FM) metals, semiconductors, and insulators. This area of research has attracted much interest because it may provide a means to make use of waste heat from electronic devices. While several theories have been presented, there are still open questions regarding the physical mechanism of this effect. Recent experimental evidence suggests that magnons and phonons play a role in thermal spin physics; however, the experiments done to date are performed primarily through detection of a voltage via the Inverse Spin Hall Effect that is due to the steady-state accumulation of a spin distribution across the FM material and consequently provide only indirect information on the magnons. Here we will discuss an experimental setup that we have designed to explore the role of magnons in the SSE using Brillouin light scattering.

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