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Localized spin-wave modes in a triangular magnetic element studied by micro-focused Brillouin light scattering

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ABSTRACT

Localized spin-wave modes, which were thermally excited at a specific position in a triangular magnetic element, were investigated using micro-focused Brillouin light scattering in two saturated states, the buckle and Y-states, with an applied magnetic field of 0.24 T parallel and perpendicular to the basal edge, respectively. The measured frequency spectrum at a specific beam spot position, rather than an integrated spectrum, was analyzed by comparing it with the simulation data at a precisely selected position within the beam spot area. The analyzed results were used to plot a two-dimensional intensity map and simulation spatial profile to verify the validity of the analysis. From the analysis process, two localized spin-wave modes in a triangular magnetic element were successfully identified near the apex region in the buckle state and near the basal edge region in the Y-state.

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