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Spin wave propagation in perpendicular magnetized 20 nm Yttrium Iron Garnet with different antenna design JILEI CHEN, TOBIAS STUECKLER, YOUGUANG ZHANG, WEISHENG ZHAO, HAIMING YU, Fert Beijing research institute, School of electronic and information engineering, BDBC, Beihang University, Beijing, China, HOUCHEN CHANG, TAO LIU, MINGZHONG WU, Department of Physics, Colorado State University, Fort Collins, CO, United States, CHUANPU LIU, ZHIMIN LIAO, DAPENG YU, State Key Laboratory for Mesoscopic Physics and Electron Microscopy Laboratory, School of Physics, Peking University, Beijing, China, FERT BEIJING RESEARCH INSTITUTE TEAM, COLORADO STATE UNIVERSITY TEAM, PEKING UNIVERSITY COLLABORATION — Magnonics offers a new way to transport information using spin waves free of charge current and could lead to a new paradigm in the area of computing. Forward volume (FV) mode spin wave with perpendicular magnetized configuration is suitable for spin wave logic device because it is free of non-reciprocity effect. Here, we study FV mode spin wave propagation in YIG thin film with an ultra-low damping. We integrated differently designed antenna i.e., coplanar waveguide and micro stripline with different dimensions. The k vectors of the spin waves defined by the design of the antenna are calculated using Fourier transform. We show FV mode spin wave propagation results by measuring S_{12} parameter from vector network analyzer and we extract the group velocity of the FV mode spin wave as well as its dispersion relations.

Jilei Chen
BeiHang University

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