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Excitation of spin waves in superconducting ferromagnets VITALY BRAUDE, EDOUARD SONIN, Racah Institute of Physics, Hebrew University of Jerusalem — Excitation of spin waves in a superconducting ferromagnetic slab is analyzed theoretically. We calculated the surface impedance for various orientations of the ferromagnetic spontaneous magnetization with respect to the sample surface. Threshold frequencies were found at which the impedance has singularities. We determine the form of the singularities and discuss their physical meaning. Our analysis shows striking differences between a superconducting ferromagnet and both a ferromagnetic metal and a nonmagnetic superconductor. Hence experimental investigation of spin wave modes can be an effective probe of unusual magnetic properties of superconducting ferromagnets, including unconventional superconductors with broken time-reversal symmetry.

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