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waves in  
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are critical  
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merge. (Courtesy:  
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Caution needed  
when testing  
Einstein's general  
relativity using  
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such as Werner  
Heisenberg and  
Erwin Schrödinger  
had no applications  
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offs that  
discoveries such as  
the Higgs boson or  
gravitational waves  
might lead ...

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spectroscopy  
measurements are  
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aspects of  
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such as the magnetostatic approximation, Walker's equation, the spin wave manifold in the three different excitation geometries of forward volume, backward volume and surface waves, and the dispersion of spin waves. The

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waves and their  
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excitation of  
magnetic media  
was introduced  
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ago, this field has  
been repeatedly  
bringing us  
fascinating new  
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In the past few  
years, there has  
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magnons) in ordered magnetic materials. These are the low-lying excitations that characterize the dynamical behavior of the magnetization variables in ferromagnets, ferrimagnets and antiferromagnets, particularly at low

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temperatures. Many of the recent developments concerning spin waves have been directed towards understanding their behavior in limited magnetic samples. At the same time, there have been dramatic advances in the experimental techniques, both

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for preparing high-quality magnetic samples in the form of thin films and superlattices and for the study of the spin-wave excitations themselves.

Magnetic thin films have long been of technological as well as scientific interest and an

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controlling and,  
more importantly,  
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(photons) and spin waves (magnons) can be, among others, a step towards the realization of magnon-mediated microwave-to-optical transducers for quantum computing applications or hybrid solid-state spintronic-photonic



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interconnections. In this respect, the development of novel composite multifunctional micro/nanostructures — so-called optomagnonic — which simultaneously control optical and spin waves and enhance their interaction, is

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