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Persistent spin current in mesoscopic ferrimagnetic spin ring MING-CHE CHANG, JING-NUO WU, National Taiwan Normal University, MIN-FONG YANG, Tunhai University — Using a semiclassical approach, we study the persistent magnetization current of a mesoscopic ferrimagnetic ring in a nonuniform magnetic field. At zero temperature, there exists persistent spin current because of the quantum fluctuation of magnons, similar to the case of an antiferromagnetic spin ring. At low temperature, the current shows activation behavior because of the field-induced gap. At higher temperature, the magnitude of the spin current is proportional to temperature T, similar to the reported result of a ferromagnetic spin ring.

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