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An Exotic Spin Mode in a Non-Polarized Fermi Liquid With Net Spin-Current YI ZHANG, KEVIN BEDELL, Boston College, Department of Physics — We find an exotic spin excitation in an ordered magnetic system with an order parameter with a net spin current but no net magnetization. Starting from a Fermi liquid theory, similar to that for a weak ferromagnet, this excitation emerges from a state that is protected by a Pomeranchuck instability. We derive the propagating mode using Landau kinetic equation, using two different approaches and find that the dispersion of the mode is the same for both approaches in leading order.

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