

Abstract Submitted  
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**Electron Spin Resonance in  
a Kondo lattice**, PEDRO SCHLOTTMANN, Florida State University — Until recently it was commonly believed that due to the broad linewidth electron spin resonance (ESR) could not be observed in heavy-fermion compounds. This was proven to be wrong, since an ESR signal was found<sup>1</sup> in single crystals of YbRh<sub>2</sub>Si<sub>2</sub> as well as in other systems. Recently, Abrahams and Wölfle<sup>2</sup> studied the ESR signal of a heavy fermion band within the framework of the Anderson lattice. They obtained that the heavy mass in conjunction with ferromagnetic fluctuations can lead to narrow resonances, and concluded that the observed ESR in YbRh<sub>2</sub>Si<sub>2</sub> is due to the heavy fermion conduction states and not the Yb localized moments. Here I study the ESR linewidth for localized moments within the framework of the Kondo lattice model. An ESR signal can only be observed if the Kondo temperature is sufficiently small. In addition, to obtain an observable signal short-range ferromagnetic correlations between the localized spins are necessary, which may lead to a bottleneck situation, that narrows the linewidth. It is concluded that from ESR data alone it is not possible to distinguish if the resonance is due to localized spins or conducting heavy electron spins.

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<sup>1</sup> J. Sichelschmidt *et al.*, Phys. Rev. Lett. **91**, 156401 (2003).

<sup>2</sup> E. Abrahams and P. Wölfle, Phys. Rev. B **78**, 104423 (2008).

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