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Abstract for an Invited Paper  
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**Theory of RF Spectroscopy in Strongly Interacting Fermi Gases<sup>1</sup>**

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Radio frequency (RF) spectroscopy is an extremely powerful probe of the many-body state of a gas of cold atoms. For example spectra of cold Fermi gases have been used as evidence of superfluidity, and of pairing fluctuations in the normal state. Despite the large amount of information they contain, spectra of trapped gasses are not completely trivial to analyze. I will discuss the theory of RF spectroscopy, showing that the link between pairing and the observed spectra is very indirect, and that many of the “pairing” features occur even in a gas with no pairing whatsoever. I will also describe the important role played by final state interactions.

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