

Abstract Submitted  
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**Quasi-particle linewidth close to a quantum critical point:  
Crossover from non-Fermi liquid to Fermi liquid behavior<sup>1</sup>** PEDRO  
SCHLOTTMANN, Florida State University — Heavy fermion systems frequently  
display non-Fermi liquid behavior due to a nearby quantum critical point. A nested  
Fermi surface together with the remaining interaction between the carriers after  
the heavy particles are formed may give rise to itinerant antiferromagnetism. The  
order can gradually be suppressed by mismatching the nesting and a quantum crit-  
ical point is obtained as  $T_N \rightarrow 0$ . The quasi-particle linewidth is calculated in  
the paramagnetic phase following an approach outlined by Viroztek and Ruvalds  
(Phys. Rev. B **42**, 4064 (1990)). The linewidth shows a crossover from non-Fermi  
liquid ( $\sim T$ ) to Fermi liquid ( $\sim T^2$ ) behavior with increasing nesting mismatch and  
decreasing temperature. The quasi-particle linewidth is a quantity relevant to the  
electrical resistivity and the width of the inelastic neutron scattering quasi-elastic  
peak.

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