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Dispersive Impurities in one-dimensional Fermi Gases: From one to two Channel Kondo Polarons KAREN HALLBERG, Centro Atomico Bariloche and Instituto Balseiro, CNEA, CONICET, Bariloche, Argentina, JULIAN RINCON, Oak Ridge National Laboratory, USA, DANIEL GARCIA, Centro Atomico Bariloche and Instituto Balseiro, CNEA, CONICET, Bariloche, Argentina, MATTHIAS VOJTA, Institut für Theoretische Physik, Technische Universität Dresden, 01062 Dresden, Germany — We consider the problem of a dispersive magnetic impurity interacting antiferromagnetically with a one dimensional fermionic gas. By combining general considerations and extensive numerical simulations we show that the problem displays a quantum phase transition between two-channel and one-channel Kondo behaviour upon increasing the Kondo coupling and construct a phase diagramme. We also discuss possible experimental realisations.

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