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**Strongly Interacting Spin-Polarized Fermions in Quasi-1D Traps: Interactions and Correlations**[1] SCOTT BENDER, KEVIN ERKER, BRIAN GRANGER, Santa Clara University, Santa Clara, CA 95053 — When confined to quasi-one-dimensional (1D) geometries, spin-polarized fermions can have strong effective 1D interactions. This opens up the possibility of studying a fermionic version of the Tonks-Girardeau gas of impenetrable bosons. In the fermionic Tonks-Girardeau gas, strongly interacting 1D fermions are dual to weakly interacting 1D bosons. We describe both the two particle scattering physics leading to these strong effective 1D interactions and the correlations that these interactions create in the many body system. We will also discuss the prospects for studying this system in ultracold atom gases.

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