

Abstract Submitted  
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**Dynamical Fermionization, Tan Contact, and Scalings for a Strongly Interacting Gas after quench.**<sup>1</sup> SHAH SAAD ALAM, TIM SKARAS, LI YANG, HAN PU, Rice University — Dynamical fermionization has been theoretically demonstrated for hard core spinless bosonic and anyonic gases in 1D. It refers to the phenomenon where, after the initial harmonic confinement is turned off, the momentum distribution of the system asymptotically approaches that of a free Fermi gas. Evidence of dynamical fermionization was experimentally shown for 1D hard core bosonic gases recently. We extend this study to a system of 1D spinor gas in the strongly interacting regime, and analytically prove that the asymptotic momentum distribution of a spin component after the harmonic trap is turned off resembles the initial real space density profile of that component in the trap. As illustrative examples, we present two particle and few particle calculations for specific spinor systems. Finally, we present the Tan contact for a strongly interacting spinor system, as well as its scaling during expansion.

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