

Abstract Submitted  
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**Adiabatic quantum pumping of a desired ratio of spin current to charge current** SUNGJUN KIM, Department of Physics, The Pennsylvania State University, University Park, PA, KUNAL DAS, Department of Physics, Fordham University, Bronx, NY, ARI MIZEL, Department of Physics, The Pennsylvania State University, University Park, PA — We present a prescription for generating pure spin current or spin selective current, based on adiabatic quantum pumping in a tight-binding model of a one dimensional conductor. A formula for the instantaneous pumped current is derived without introducing the scattering matrix. Our calculations indicate that some pumping cycles produce the maximum value 2 of pumped spin while others reverse the direction of current as a result of small alterations of the pumping cycle. We find pumping cycles which produce essentially any ratio of spin current to charge current.

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