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Topological order of a Polymer Chain in a Time-Dependent Potential RICARD PABLO PEDRO, MIT, JAYSON PAULOSE, Lorentz Institute for Theoretical Physics, MILDRED DRESSELHAUS, MIT, VINCENZO VITELLI, Lorentz Institute for Theoretical Physics — We study the effect of a polymer chain under a time-dependent external potential which presents broken time-reversal symmetry and find that a polymer chain can exhibit the classical counterpart of the Thouless quantum pump in the limit of strong potentials, signaling the existence of topological order in a polymer system. The topological order is quantized in terms of Chern numbers which is observed after explicit calculations. Since this quantization is topological protected against a small amount of disorder and other factors, our model can be used to the design of topological polymer's materials that illustrates different configurations of a polymer for practical uses

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