

Abstract Submitted
for the NWS05 Meeting of
The American Physical Society

Superconducting Strings in an Unusual Environment MAX METLITSKI, University of British Columbia — It is well known that fermion zero modes concentrated in the core of a topological defect can endow the defect with highly nontrivial physical properties. A particular example of this phenomenon due to Witten, is the so-called string superconductivity, when an application of an electric field along the string leads to an appearance of a persistent current in the string direction. In this talk, I will show that a current along the string can also be induced by placing the string in an environment with a non-zero fermion chemical potential and temperature. The resulting current is exactly calculable and topological in nature. I will also discuss how the interest in this problem was motivated by the study of topological defects in dense quark matter, which might be realized in the interiors of neutron stars.

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Date submitted: 01 Apr 2005

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