1033-81-149   **Roman V. Buniy** (`roman.buniy@gmail.com`), Physics Department, Indiana University, Bloomington, IN 47405, and **Thomas W. Kephart*** (`tom.kephart@gmail.com`), Box 1807 Sta. B, Department of Physics, Vanderbilt University, Nashville, TN 37235. *Generalizing the Aharonov-Bohm Effect: Higher Order Topological Phases.*

In classical mechanics, the action is defined only modulo boundary terms since they do not change the equations of motion and in certain cases, the boundary terms are topological quantities. The first order topological term is responsible for the Aharonov-Bohm effect. We ask if higher order topological terms play a role in quantum mechanics and suggest a simple experiment capable of answering this question. (Received September 09, 2007)