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Aharonov-Casher effect in hole ring with spin-orbit interaction MARIO BORUNDA, ALEXEY KOVALEV, Physics Department, Texas A&M University, TOMAS JUNGWIRTH, Institute of Physics, Academy of Sciences of the Czech Republic, LAURENS MOLENKAMP, Physikalisches Institut (EP3), Universität Würzburg, JAIRO SINOVA, Physics Department, Texas A&M University — We study the quantum interference effects induced by the Aharonov-Casher phase in a ring structure two-dimensional heavy-hole (HH) system with spin-orbit interaction. The influence of the spin-orbit interaction on the transport causes interference effects which are a signature of the topological Aharonov-Casher phase. We present numerical calculations of the magnetoconductance and spin dependent transport in realistic semiconductor ring structures.

> Mario Borunda Physics Department, Texas A&M University

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