

Abstract Submitted
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Resonant Transmission of Electron Spin States through Multiple Aharonov-Bohm Rings JIM CUTRIGHT, ERIC HEDIN, YONG JOE, Dept. of Physics & Astronomy, Ball State University — An Aharonov-Bohm (AB) ring with embedded quantum dots (QD) in each arm and one -dimensional nanowires attached as leads acts as a primitive cell in this analysis. When a tunable, external magnetic field is parallel to the surface area of the ring it causes Zeeman splitting in the energy levels of the QDs. An electron that traverses these energy levels has the potential to interfere with other electrons and to produce spin polarized output. It is already known that upon output the transmission of the electrons through this system will have a resonant peak at each Zeeman split energy level. A system where multiple AB rings are connected in series is studied, to see how having the electrons pass through multiple, identical rings effects the resonant peaks in the transmission and the degree of spin polarization.

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