

Abstract Submitted  
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**Electron Transport through DNA Molecules with Magnetic Field Effects** GAGE DECKER, ERIC HEDIN, YONG JOE, Dept. of Physics & Astronomy, Ball State University — Using the tight-binding formalism, a simplified model of the DNA molecule is analyzed and electron transmission plots as a function of molecular parameters are presented. In addition the Aharonov-Bohm effect is used to study the influence of an external magnetic field on electron transport through the modeled DNA Molecule. Data on the minimum flux necessary to produce a resonant change in the electron transmission will be presented. Contour plots of transmission versus flux and energy will be shown, and current-voltage curves for selected cases will be included. Applications of this work include possible tools for DNA base-pair sequencing, identifying point-mutations in DNA, and utilizing synthetic DNA in nano-electronic devices.

Eric Hedin  
Dept. of Physics & Astronomy, Ball State University

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