

CWSF 2012 - Charlottetown, Prince Edward Island



Benjamin Friedman

A Turn for the Better

Challenge: Discovery

Category: Senior

Region: Cariboo Mainline

City: Kamloops, BC

School: Kamloops Secondary

Abstract: I used mathematics to predict that a magnetic dipole suspended inside a current-carrying coil of turn-density linearly varying with height would experience a force proportional to the magnet's length. I constructed a novel electromagnetic coil with linearly varying turn-density and confirmed the theory experimentally using neodymium magnets. I ran the experiment at three different heights in the coil and controlled with constant turn-density.

Biography

Hello. My name is Benjamin Friedman. My main interest is science, specifically physics. I also enjoy mathematics. I enjoy mathematics conceptually: my least favourite thing about math is when I have to use actual numbers. This is why I absolutely detested math in elementary school. There was too much computation and not enough creativity. This interest in math is very compatible with my passion for physics, as physics employs a lot of math. I like physics because it is, in my opinion, the most conceptually interesting and fundamental of the sciences. I spend a lot of my time reading about physics, or watching online lectures through Khan Academy and MIT OpenCourseWare. I am very involved in my school: I play clarinet in the school band, sing in the school choir, and am the president of the school science club. Some of my hobbies include skiing, chess, and reading. I am a particularly avid reader of J.R.R. Tolkien and Arthur C. Clarke. I enjoy music by Bach, Herbie Hancock, and Michael Nyman, among others. I am still afraid of the dark, so I carry a flashlight everywhere I go.

Awards

Value

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| International Summer School for Young Physicists Award Sponsor: Perimeter Institute for Theoretical Physics | \$2 500 |
| Excellence Award - Senior - Bronze Medal Sponsor: Nuclear Waste Management Organization | \$300 |
| University of Ottawa Entrance Scholarship Senior Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Ottawa | \$1 000 |
| Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University | \$1 000 |
| Total | \$4 800 |