

Abstract Submitted
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MiniCNT - A Tabletop Stellarator CHRIS DUGAN, Bronx High School of Science, THOMAS PEDERSEN, JOHN BERKERY, Columbia University — MiniCNT is a scaled down version of the Columbia Non-Neutral Torus, a stellarator built to study confinement of non-neutral plasmas on magnetic surfaces. MiniCNT is a glass vacuum chamber capable of holding pressures six orders of magnitude below atmospheric pressure. Unlike CNT, in which plasmas are invisible, MiniCNT allows some collisions with neutrals, causing it to glow. Using two twelve-volt car batteries to power four magnetic coils, MiniCNT generates a 0.02 Tesla magnetic field. While CNT, being larger, is obviously more accurate, there are multiple benefits in MiniCNT. First, it is more flexible and can be adjusted to fit many scenarios easily. The car batteries can be switched for other power sources, the coils can be realigned, and the chamber can be pumped to various pressures of various gases. Also, it is visually accessible; while CNT has glass viewing ports and its plasma is dark, MiniCNT is made of glass and its plasma glows, allowing visualization of the magnetic surfaces.

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