The Shocking News About Electricity:

An Investigation Into the Relationship Between Distance and

Electric Field Strength

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Abstract

This paper examines the relationship between the strength of the electric field of a charged disk and the distance an object is placed from it. However, the prime focus of the paper is not on the true nature of electric fields; rather, a detailed mathematical analysis is used to examine the nature of the equations utilized in the calculation of electric field strength. The focus of the investigation centers around the limitations of the equation used to calculate the strength of the electric field of a charged disk, specifically it's fallibility at large distances. By utilizing a Taylor series approximation, an equation accounting for the electric field strength at distances much greater than the radius of the disk was found. As distance increases, the electric field strength of a charged disk approaches and eventually becomes equivalent to that of a point charge.