

Abstract Submitted  
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**Ab initio Calculation of Galactic Rotation Curves in vacuo**

MICHAEL MAKOID, RUSSELL ANANIA, Creighton University — Galactic rotation curves appear to become asymptotically flat far from the core, a feature that can be explained with an optical model of gravitational forces. With the core as a central lens, gravity from one side of the galaxy can be focused by the core onto the opposite side, thereby increasing radial forces, above those expected from a central Newtonian model. Using basic optics, the asymptotic rotational features of galaxies are easily calculated. The need for dark matter in galaxies is obviated.

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