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Lunatic on a mountain : Fritz Zwicky and the early history of dark matter

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Abstract:

Fritz Zwicky is identified commonly as the discoverer of dark matter, the unobservable mass that is believed to occupy about 90 percent of the universe. In 1933 Zwicky found a mass discrepancy in the Coma cluster of galaxies, and in 1936 a similar discrepancy was found in the Virgo cluster. The startling news of a mass discrepancy in clusters did not raise many eyebrows. In fact, the astronomical community did not address the problem until the occasion of two conferences held in 1961, and it only gained astronomical prestige at the end of the 1970s, forty years after the initial postulation. Zwicky's role in the history of this most important subject in astronomy is significant in tracing the progression of the understanding of extragalactic dynamics and observations. It also shows that it is not only scientific evidence that defines theories, but that social interactions are also of vital importance.

Description:

ix, 102 leaves : ill. ; 28 cm.

Includes abstract and appendix.

Includes bibliographical references (leaves 88-102).

Subject:

- Zwicky, F. (Fritz), 1898-1974
- Dark matter (Astronomy)
- Missing mass (Astronomy)
- Astronomy -- History -- 20th century

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The first to propose the existence of dark matter, Swiss astronomer Fritz Zwicky wasn't well-loved for much of his career. That is a fitting epitaph for Fritz Zwicky, the Swiss

astrophysicist who predicted neutron stars and dark matter, spawned a worldwide craze over supernovae in the 1930s, was a pioneer in jet propulsion and, along the way, managed to alienate just about every important astronomer of the 20th Century. Read more about dark matter: What is dark matter? Desperately seeking missing matter: the search for 95 per cent of the Universe. In the early 1930s, he found fame by predicting that after exploding a supernova would collapse to a neutron star only 30 kilometres across. A teaspoonful of the stuff would weigh 4.5 million kilogrammes. 6. Tricia Close, «Lunatic on a Mountain: Fritz Zwicky and the Early History of Dark Matter» (master's thesis, Saint Mary's University, Halifax, Nova Scotia, 2001), http://library2.smu.ca/bitstream/handle/01/22390/close_tricia_masters_2001. PDF. 8. Dark matter particles — whatever they may be — are expected to move at low speeds and are hence referred to as cold. 9. Jon Agar, *Science in the Twentieth Century — and Beyond* (Cambridge: Polity, 2012), 164. 10. Antoine de Saint-Exupéry, *The Little Prince*, translated by Katherine Woods (New York: Harcourt Brace and World, 1943), 48; and John F. Fulton, «Robert Boyle and His Influence on Thought in the Seventeenth Century», *Isis* 18, no. 1 (July 1932): 77–102.