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# SuperBIT balloon-borne telescope

*Friday, 15 December 2023 10:50 (25 minutes)*

SuperBIT telescope was carried to the top of the Earth's atmosphere in April/May 2023, by a helium balloon the size of a sports stadium. For 40 days and 45 nights it circumnavigated the Southern hemisphere 5.5 times. Using image stabilisation, it achieved diffraction-limited UV and optical imaging. We mapped the weak gravitational lensing signal of merging galaxy clusters like the Bullet Cluster, to track the dynamics of dark matter during astronomically large collider experiments. Cosmological simulations suggest that these mergers will be the best place to measure any cross-section for interaction between dark matter particles (and not with ordinary matter), caused by forces predicted by extensions to the particle physics standard model but restricted to the dark sector.

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