



An Explanation of the Voyager Paradox: Particle Acceleration at a Blunt Termination Shock

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Voyager 1 recently crossed the termination shock at the edge of our heliosphere. In contrast to the expectations of essentially all prior models, however, Voyager 1 did not observe the source of Anomalous Cosmic rays (ACRs) as had been widely anticipated. We show here that the dearth of higher energy particles near the nose of the heliosphere is a natural consequence of the magnetic geometry in the region ahead of a flattened shock. Particle energization happens primarily back along the flanks of the shock where the injection energy is lower and where the magnetic field has had progressively longer connection times to accelerate particles. In addition to explaining the most baffling aspects of the Voyager 1 observations, this paradigm makes explicit predictions about what should be observed when Voyager 2 reaches the termination shock, significantly further back from its nose.