An Extensive Search for Interferometric Slow-mode Shocks

I. Introduction

Shocks in the solar corona and outer heliosphere are important for understanding the dynamics of the Sun's magnetic field and the propagation of solar energetic particles. In this work, we present an extensive search for slow-mode shocks using the Helios spacecraft data. We aim to identify and characterize these shocks to better understand their role in the solar wind dynamics.

II. Methodology

The search for slow-mode shocks involves analyzing high-speed streams observed by the Helios spacecraft. We use data from both spacecraft to identify regions of discontinuity that are indicative of shock crossings. This approach allows us to study the propagation of shock waves in the solar wind and their influence on the heliosphere.

III. Results

Our analysis reveals a significant number of slow-mode shocks in the solar wind, which are often associated with high-speed streams. These shocks are characterized by a sharp increase in the interplanetary magnetic field strength and a drop in the solar wind speed. The identified shocks provide valuable insights into the dynamics of the heliosphere and the solar wind.

IV. Conclusions

The search for slow-mode shocks using the Helios spacecraft data has yielded promising results. We have identified a large number of shocks that are important for understanding the dynamics of the solar wind and the heliosphere. Future studies will focus on refining our methodology and applying it to additional spacecraft data to gain a deeper understanding of shock wave propagation in the solar wind.

References