

## The Quantitative Relation of the Time Profiles of Intensities in the Well-connected Solar Proton Events

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The purpose of this study is to identify the quantitative relationship between the intensity time profiles in well-connected energetic particle events. The focus is on studying the propagation processes of energetic protons in the energy channels of about 13-64 MeV using solar energetic particle (SEP) events observed by STEREO A, STEREO B, and SOHO. The intensities observed by the spacecraft with the best magnetic connection to the source region have highest peak intensities. For cases without multiple injections or significant acceleration of particles by interplanetary shocks, a solution of the diffusion equation is used to fit particle intensities with the highest peaks. The time profiles of particle intensities can be described by two parameters. By analyzing 59 energetic proton events, a power-law model is found to describe the relationship between the two parameters in different events, and the distribution of peak time is also obtained. The power-law model provides a quantitative relation of SEP intensities, and the distribution of peak time could provide a basis for determining the magnetic connection.

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