摘要：I will present model calculations of solar energetic particle’s (SEP) transport through the complex solar coronal magnetic fields and the subsequent interplanetary space. Three-dimensional focused transport equations are solved numerically in the reconstructed coronal magnetic fields and the ideal parker interplanetary fields. All physical processes including focusing, adiabatic cooling, gradient/curvature drift, and diffusions are considered. This model is utilized to study the long-standing wide-spread characteristics in the SEP observations. The model is applied to several solar energetic particle events including a circumsolar event, 2011 November 3, in which SEPs are observed promptly after the solar event eruption by three spacecraft (the twin Solar TErrestrial RElations Observatories (STEREO-A and STEREO-B) and ACE) separated by more than 100° in longitude from each other. Energetic electrons at the energy of 100 keV are injected on the time-dependent coronal mass ejection (CME)-driven shock surfaces. The effect of the complex coronal magnetic field structure together with the perpendicular diffusion/meandering of field lines due to the photosphere supergranular motion is investigated. This model can be also applied to study the nonthermal emissions generated by the collision between the energetic particles and the ambient solar wind plasma.