

R007-06

C会場 : 9/25 AM2 (10:45-12:30)

10:45~11:00

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Relationship between coarse-graining scales and Markovian characteristics in the solar wind magnetic fluctuation

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It is known that magnetic fluctuation observed in the solar wind has turbulent spectra [e.g., Bruno+Carbone, 2013; Verscharen et al, 2019]. Since power-law like spectra are usually observed not only at magnetohydrodynamic (MHD) scale but also at ion/electron scales, coarse-graining scales to carry out the scale-separation are not trivial. Recently, the author proposed a method to give a coarse-graining scale in MHD turbulence by using the sub-grid-scale (SGS) model [SGEPSS fall meeting, R007-10, 2019]. In this presentation, we discuss the relationship between coarse-graining scales evaluated by the SGS model and Markovian characteristics of the solar wind magnetic fluctuations, which have been evaluated by using data of several spacecrafts [Sturumik+Macek, NPG, 2008; PRE, 2008; Benella et al, ApJL, 2022; Macek et al, ApJ, 2023]. A Monte-Carlo significance test of the resultant coarse-graining scale is carried out by using the surrogate data method. Physical meaning of an "ergodic feature" evaluated by the SGS model will be discussed from the point of view of the Markovian characteristics of magnetic fluctuations.