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Signatures of intermittent turbulence in Hinode quiet-sun photosphere

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Abstract. Plasma turbulence is ubiquitous in astrophysics in general and in the solar photosphere, in particular. It is a fundamental physical process that plays an important role in the near-surface turbulent dynamo, plasma heating through dissipation of the turbulent energy cascade, and the propagation and scattering of waves, to name a few. Turbulence is a nonlinear phenomenon with the energy cascade process that transports energy from large to small scales until the energy is finaly dissipated due to viscosity and/or resistivity. It is thought that the fully developed MHD turbulence acquires an intermittent nature when the extrimely high fluctuations (in both temporal and spatiol domains) are not rare and they determine the energy release dynamics of the system. We undertook an effort to estimate signatures of intermittent turbulence in the quiet-sun photosphere from both magnetic and kinetic viewpoints by utilizing Hinode SOT/SP data. Our finding are interpreted in the framework of fast dynamo and multifractal organization of the magnetic and kinetic structures in the quiet-sun photosphere.