



Coherent structures and incoherent waves in electrostatic turbulence

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From the experimental evidence that both coherent structures and incoherent waves are simultaneously present in space and laboratory plasmas and that they play an important role in filamentation processes, a new theoretical approach is developed which aims at considering these two aspects of strong turbulence in a consistent way. How do these dual form of turbulence coexist ? What are the correct tools in order to understand the complex underlying wave-particle interactions ? What can we learn from the study of electrostatic turbulence ? What kind of new measurements do we need to further investigate these processes ? These are the questions we shall try to answer to.