Séminaire de mathématiques et leurs applications

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Titre: New theory for chaotic intermittency with and without noise.

Résumé: A new theory to investigate systems showing chaotic intermittency phenomenon, is presented. A new general methodology to evaluate the reinjection probability density function (RPD) is also described. The key of this formulation is the introduction of a new function, called M(x), which is utilized to calculate the reinjection probability density function (RPD). The function M(x) depends on two integrals, this characteristic reduces the influence on the statistical fluctuations in the data series. Also, the function M(x) is easy to evaluate from the data series. The theory is extended to evaluate the noise effects on the chaotic intermittency. Theoretical expressions for the noisy reinjection probability density function (NRPD), the noisy probability of the laminar length and the noisy characteristic relation are obtained. The new theory is applied for type-I, -II and -III cases; and it includes the classical theory of intermittency as an specific case.