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Distribution Free Approach to Stochastic PDEs.

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Historically, stochastic partial differential equations were investigated under the assumption that the driving random noise was either Gaussian or Levy. However, in practice, one can encounter systems driven by all kinds of random perturbations. With this in mind, we will discuss linear SPDE driven by more or less arbitrary noise. We will develop a distribution free version of Malliavin calculus and demonstrate that the system PDEs for the deterministic coefficients of the Chaos expansion of the solution does not depend on the type of randomness involved. On the "practical" side, the aforementioned effect leads to substantial reduction of computational complexity of related numerical methodology. (Received January 19, 2015)