



Math for the people, by the people.

Gaussian process

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Synonym	Gaussian random field
Defines	normal process

A stochastic process $\{X(t) \mid t \in T\}$ is said to be a *Gaussian process* if all of the members of its f.f.d. (family of finite dimensional distributions) are joint normal distributions. In other words, for any positive integer $n < \infty$, and any $t_1, \dots, t_n \in T$, the joint distribution of random variables $X(t_1), \dots, X(t_n)$ is jointly normal.

As an example, any Wiener process is Gaussian.

Remark. Sometimes, a Gaussian process is known as a *Gaussian random field* if T is a subset, usually an embedded manifold, of \mathbb{R}^m , with $m > 1$.