

## **Poisson processes of objects**

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A Poisson Point Process on  $\mathbb{R}^d$  is a locally finite random subset of  $\mathbb{R}^d$  with two properties: the number of points on a bounded Borel set is a Poisson random variable with mean equal to the intensity measure of the set, and disjoint sets have independent numbers of points. I will explain how to construct a Poisson process of lines, planes and hypersurfaces in  $\mathbb{R}^d$ , and Poisson processes of random objects such as the famous Brownian loop soup, the Brownian random interacements and their discrete counterparts. Finally, I will explain the striking relationship of loop soup and interacements of random walks in  $\mathbb{R}^d$  with the spatial random permutations induced by the celebrated Bose gas.