

Abstract:

Facet process is a special example of a point process in Euclidean space \mathbb{R}^d , where points are in this case represented by compact subsets of hyperplanes in \mathbb{R}^d with given orientation, size and shape. We focus on finite facet processes with density from exponential family with respect to the distribution of Poisson point process. Its submodel is simulated using the Metropolis-Hastings birth death algorithm, which gives us a homogeneous Markov chain. Specially in \mathbb{R}^2 space we derive its stationary distribution. In spaces \mathbb{R}^2 and \mathbb{R}^4 we perform numerical simulations to show behavior of the chain for various parameters in such model.