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*Renewal Processes in Two Dimensions*

We define a renewal property for point processes in two dimensions and show that the law of the renewal process is determined by a so-called avoidance probability function. The avoidance probability is the two-dimensional analogue of the survival function of the interarrival distribution of a renewal process in one dimension. We introduce nonparametric methods for estimation of the avoidance probability. We see that martingale methods yield a unified approach for renewal processes in both one and two dimensions, and can be used for both synchronous and asynchronous data. This talk is based partially on joint work with Katherine Davies.