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Ander Holroyd and **Terry Soo**. *Multi-coloured matchings with general restrictions.*

Consider k Poisson processes in R^d , each of a different colour. Our goal is to match the points of the processes in pairs, subject to some restrictions over which colours can be matched with which others. Among such matching rules, we wish to minimize the probability that the partner of a given point is far from it. Let X be that distance. The achievable results obviously depend on the restrictions on colour pairings.

We partition this class of problems explicitly into three sub-classes. In sub-critical settings there is no invariant matching. In super-critical settings it is possible to achieve $P(X > r) \approx e^{-cr^d}$. In the critical settings we get the same result for $d > 2$ but a power tail for $d = 1, 2$. (Received August 11, 2008)