

POINTS OF INFINITE MULTIPLICITY OF A PLANAR BROWNIAN MOTION

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Abstract: The talk is based on a joint work with Elie Aïdékon and Zhan Shi.

It is well-known (see Dvoretzky, Erdős and Kakutani (1958) and Le Gall (1987)) that a planar Brownian motion has points of infinite multiplicity, and these points form a dense set on the range. Our main result is the construction of a family of random measures, denoted by $\{\mathcal{M}_\infty^\alpha\}_{0 < \alpha < 2}$, that are supported by the set of the points of infinite multiplicity. We prove that for each $\alpha \in (0, 2)$, the carrying dimension of $\mathcal{M}_\infty^\alpha$ equals $2 - \alpha$, and $\mathcal{M}_\infty^\alpha$ is supported by the thick points defined in Bass, Burdzy and Koshnevisan (1994) as well as that defined in Dembo, Peres, Rosen and Zeitouni (2001).