

On the geometry of random lemniscates

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Lemniscates (level sets of the modulus of a complex polynomial) are of basic importance in complex analysis, and they arise in a multitude of applications. We present some results on the arclength, area, inradius, and topology of lemniscates in the setting where the defining polynomials are random. This provides a probabilistic perspective on some classical extremal problems. The results presented include current joint work Koushik Ramachandran and Manjunath Krishnapur as well as previous joint works with Antonio Lerario, Koushik Ramachandran, Michael Epstein, and Boris Hanin.