Lawler, Gregory F.; **Werner, Wendelin**
Intersection exponents for planar Brownian motion. (English) Zbl 0965.60071
Ann. Probab. 27, No. 4, 1601-1642 (1999).

This paper establishes new properties of the intersection exponents for planar Brownian motion. The intersection exponent $\xi(n,p)$ is defined by $P(t) \approx t^{-\xi(n,p)/2}$ where $P(t)$ is the probability that two packets of n resp. p independent Brownian motions do not intersect each other before time t. The main results are the following:

the definition of ξ is naturally extended to any finite number of real arguments,

this is used to establish functional relations between the parameters ("cascade relations"),

relations between intersection exponent and halfspace exponents are established,

new (consistent) conjectures for the values of intersection exponents for Brownian motion are formulated,

new conjectures for the values of intersection exponents of loop-erased random walks are given.

Since the publication of this paper the authors, together with O. Schramm, have made considerable progress towards these and classical conjectures about the values of intersection exponents for Brownian motion.

Reviewer: Peter Mörters (Kaiserslautern)

MSC:

60J65 Brownian motion
81T40 Two-dimensional field theories, conformal field theories, etc. in quantum mechanics

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planar Brownian motion; intersection exponents; halfplane exponents; cascade relations; loop-erased random walk

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