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*Reversibility of Whole Plane SLE.*

Whole plane SLE is viewed as the limit of radial SLE if the target, say  $b$ , is fixed and the domain tends to the whole Riemann sphere without a single point, say  $a$ . It describes a random curve in the Riemann sphere that grows from  $a$  to  $b$ . The curve is simple if the parameter  $\kappa \leq 4$ . In this talk I will explain my recent work: whole plane SLE satisfies reversibility if  $\kappa \leq 4$ , which means that the reversal of the whole plane SLE curve from  $a$  to  $b$  agrees with the whole plane SLE curve from  $b$  to  $a$ , after suitable reparametrization. The proof uses two tools: one is the stochastic coupling technique, which was used to prove the reversibility of chordal SLE when  $\kappa \leq 4$ , and the duality of SLE; the other is the annulus Loewner equation, which was introduced to define SLE in doubly connected domains. The main idea of the proof is to grow a pair of whole plane SLE, one is from  $a$  to  $b$ , the other is from  $b$  to  $a$ , such that they are weakly independent before they meet, and every point on one curve is visited by the other curve, and so the two curves overlap. From this result, we see that the radial SLE curve near its target point behaves similarly to the whole plane SLE curve near its initial point. (Received February 18, 2010)