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Estimates for the diameter of a chordal SLE path

We derive an estimate for the diameter of a chordal SLE path in the upper half plane $\mathbb{H}$ between two real boundary points 0 and $x > 0$. Specifically, we prove that if $\kappa \in (0,8)$ and $\gamma\colon [0,1] \to \overline{\mathbb{H}}$ is a chordal SLE$_\kappa$ in $\mathbb{H}$ from 0 to x, then $P\{\gamma[0,1] \cap C_R \neq \emptyset\} \asymp R^{1-4a}$ where $a = 2/\kappa$ and C_R denotes the circle of radius Rx centred at 0 in the upper half plane. As an application of our result, we derive an estimate that two nearby points, one on the boundary and one in the interior, are swallowed together by a chordal SLE$_\kappa$ path, $4 < \kappa < 8$.

This talk is based on joint work with Tom Alberts of the Courant Institute.