1067-60-10   **Scott R. Sheffield*** (`sheffield@math.mit.edu`), 77 Mass. Ave., Cambridge, MA 02139-4307. *Conformal weldings in quantum gravity: zippers, necklaces, and SLE.*

- Liouville quantum gravity is a canonical notion of a random two-dimensional surface. It was originally proposed as a model for the intrinsic Riemannian geometry on the space-time trajectory of a string.

- The Schramm-Loewner evolution (SLE) is a canonical notion of a random non-self-crossing path in the plane. It appears frequently in two-dimensional statistical physics and conformal field theory.

It turns out that SLE is the right tool for understanding how to combine and subdivide the random geometries of Liouville quantum gravity. When we "glue" or "conformally weld" independent random surfaces to each other, the interfaces between the surfaces become forms of SLE. These findings are consistent with the (still unproven) belief that Liouville quantum gravity is a scaling limit of discrete random surfaces. (Received September 22, 2010)