The scaling limit of random plane quadrangulations

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I will present recent progress on the convergence of rescaled large random quadrangulations — i.e. a large uniform gluing of squares forming a topological sphere — towards a continuum object called the Brownian map, which is a universal model for a continuum random surface. I will convey some of the main ideas of the proof, which requires a precise study of geodesics in large quadrangulations and in the limiting space, and in particular, of the locus where these geodesics tend to separate. If time allows I will also mention some questions concerning loop models on random quadrangulations.