RANDOM MAPS AND THEIR SCALING LIMITS

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We show the convergence of large random quadrangulations, i.e. random decompositions of the sphere into a large number of quadrangles, towards the so-called Brownian map, which is a universal model for a continuum random surface. Proving this convergence, which holds in the Gromov-Hausdorff topology after proper rescaling of distances in the random map, requires a precise study of geodesics in large quadrangulations and in the limiting space, and in particular, of the locus where geodesics tend to separate.