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Loss of compactness and bubbling for complete minimal surfaces in hyperbolic space

We consider the Willmore energy on the space of complete minimal surfaces in H3 (with an unprescribed boundary at infinity) and study the possible loss of compactness in the space of such surfaces with energy bounded above. This question has been extensively studied for various energy functionnals for closed manifolds. The first such study was that of Sacks and Uhlenbeck for harmonic maps. Some key tools to study the loss of compactness in that case are epsilon-regularity and removability of singularities theorems; the loss of compactness can then occur due to bubbling at a finite number of points where energy concentrates. We find analogous results in our setting of complete surfaces. These are the first results in this direction for surfaces with a (free) boundary. joint with R. Mazzeo.