Symplectic packing and hyperbolicity

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It was conjectured that any Calabi-Yau manifold is dominated by $\mathbb{C}^n$ (that is, admits a maximal rank holomorphic map from $\mathbb{C}^n$). Many examples of K3 surfaces dominated by $\mathbb{C}^2$ were constructed by Buzzard and Lu. For holomorphically symplectic manifolds, one could consider instead holomorphic symplectic immersions from an open ball with standard holomorphically symplectic form.

Supremum of the radius of such balls measures holomorphic symplectic non-hyperbolicity of a manifold. I will prove that this number is essentially a deformational invariant of a hyperkähler manifold, and explain the recent results (joint with M. Entov) on the real symplectic packing problem. Given any collection S of (real) symplectic balls and any hyperkähler manifold or a torus M with symplectic volume bigger than the sum of volumes of S, we could always embed S to M symplectically.