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Explicit hyperbolicity of nodal surfaces

The fact that hyperbolic curves have only finitely many integral points has various analogues in higher dimensions. For instance, for complete surfaces, Kobayashi hyperbolicity implies that there are only finitely many rational curves on the surface. One can prove that this is the case by exhibiting a regular symmetric differential on the surface. Furthermore, with multiple such forms it may be possible to compute a proper algebraic sublocus that must contain all such curves.

We report on ongoing joint work with Anthony Várilly-Alvarado exploring explicit results on the existence of such forms on surfaces given by a model with nodal singularities.