Title: Dimension-optimal spaces of smooth cubic splines for a Hermite interpolation problem over polygonal holes.

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Abstract: We propose a hole filling algorithm based on well known Bernstein-Bezier polynomial splines. The hole is assumed to be contained in some triangulated planar domain, with a $C^1$ cubic spline surface constructed over it.

The main idea behind the algorithm is to obtain a refinement of the initial triangulation of the hole that best matches the boundary information available from the surrounding spline surface.