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Jimmy Shan*, Department of Mathematics, University of Illinois Urbana-Champaign, Urbana, IL 61801. *Local Dimension of C^2 Tetrahedral Splines.*

Alfeld, Schumaker and Whiteley determined the dimension of C^1 generic tetrahedral splines for degree $k \geq 8$. We analyze the local dimension of C^2 tetrahedral splines, where local dimension means that the tetrahedral complex has a single interior vertex. The dimension depends on subtle geometry of the fatpoints corresponding to the con guration of the hyperplanes adjacent to the interior vertex. A key tool is the classi cation of the relevant fatpoint ideals by Geramita, Harbourne and Migliore. (Received August 18, 2012)