Admissible meshes on algebraic sets

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Admissible meshes were formally introduced by J. P. Calvi and N. Levenberg in 2008. Such meshes are nearly optimal for uniform least squares approximation and contain interpolation sets nearly as good as Fekete points of the domain. Optimal admissible meshes have been constructed on many polynomially determining compact sets, e.g., sections of discs, ball, convex bodies, sets with regular boundary, by different analytical and geometrical techniques. Regarding subsets of algebraic varieties admissible meshes are known only for a few compacts like sections of a sphere, a torus, a circle and curves in $\mathbb{C}$ with analytic parametrization. We construct polynomial weakly admissible meshes on compact subsets of algebraic hypersurfaces in $\mathbb{C}^{N+1}$. These meshes are optimal in some cases. We present also partial results for algebraic sets of codimension greater than one.