

Approximation theory and hyperplane arrangements.

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Alfeld introduced a subdivision $AS(n)$ of an n -simplex, generalizing the Clough-Tocher split of a triangle. A formula for the dimension of the spline space $C^r_k(AS(n))$ was conjectured recently by Foucart-Sorokina. We prove that the graded module of C^r -splines on the cone over $AS(n)$ is isomorphic to the module $D^{r+1}(A_n)$ of multiderivations on the type A_n Coxeter arrangement. A theorem of Terao shows that the module of multiderivations of a Coxeter arrangement is free and gives an explicit basis, and proves the conjecture.