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Spline models for algebra and geometry.

When engineers or computer graphics people use the word "spline" they are talking about matching (polynomial) curves to smoothly model complicated surfaces. Dual to this idea is the concept of an "algebraic spline." Given a graph whose edges are labeled by ideals of a given ring R , an algebraic spline is a function f from the vertices to R such that if two vertices v and w are adjacent, then $f(v) - f(w)$ is in the ideal labeling edge vw . Splines can be used to explicitly compute (equivariant) cohomology rings of algebraic varieties called GKM spaces. This talk will present recent work extending the spline model to new settings, both geometric and purely algebraic. (Received September 15, 2017)