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Andrew R Kustin*, Mathematics Department, University of South Carolina, Columbia, SC 29208. *Singularities of plane curves which are parameterized by homogeneous forms of small degree.*

Consider an ideal I of height two generated by three homogeneous forms of degree six in $R = k[x, y]$. On the one hand, we describe the degrees of the minimal generators of the defining ideal \mathcal{A} of the Rees algebra $R[It]$. There are only a handful of possibilities. On the other hand, the ideal I gives rise to a parameterization of a curve \mathcal{C} in the projective plane. The curve \mathcal{C} has singularities and the multiplicities of these singularities are determined by the generator degrees of \mathcal{A} . This work has been carried out with Claudia Polini, Bernd Ulrich, and David Cox. (Received August 23, 2009)