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Zachariah C Teitler* (zteitler@selu.edu), Department of Mathematics, SLU 10687,
Hammond, LA 70402. *On the intersection of the curves through a set of points in \mathbb{P}^2 .*

Given a set of points in \mathbb{P}^2 , we consider the common zeros of the set of curves of a given degree passing through those points. For general sets of points, these zero sets have the expected dimension and are smooth. In fact, given graded Betti numbers, for any arrangement of points whose ideal has those graded Betti numbers, general among such arrangements, the zero sets have the expected dimension and are smooth.

The proof is via the Hilbert–Burch theorem. An application is given for the resolution of the singularity of a general arrangement of lines through the origin in \mathbb{C}^3 . (Received January 15, 2006)