Arrangements of conics and lines

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The study of arrangements of lines and conics was very popular in ancient times. For example, the Greek mathematician Apollonius studied configurations of in total three objects that were either points, lines, or conics. Then he determined the number of circles tangent to these three. A first goal in this project would be to compute algebraic solutions to Apollonius problems for some of the configurations.

The last few years, the study of arrangements of lines and conics has been revived. The motivation for this revival is to answer a famous conjecture by Terao from 1992 [OT92]. While Terao's conjecture is outside the scope of this project, studying some of the interesting arrangements of lines and conics that appear in the recent research on this topic is a possible second goal of this project [DJP21].

References

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[OT92]   Orlik, P. and Terao, H. *Arrangements of hyperplanes*. Vol. 300. Grundlehren der mathematischen Wissenschaften [Fundamental Principles of Mathematical Sciences]. Springer-Verlag, Berlin, 1992, pp. xviii+325.