

Harvard-MIT Algebraic Geometry Seminar

# The canonical model of a singular curve

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Given an arbitrary complete integral curve  $C$  of arithmetic genus  $g$  at least 2, Rosenlicht (1952) introduced its canonical sheaf  $\omega$  and its canonical model  $C'$ : he proved that  $H^0(\omega)$  defines a base-point-free linear series on the normalization of  $C$ , formed the corresponding map into  $\mathbb{P}^{g-1}$ , and took  $C'$  to be its image. Rosenlicht proved, among other results, that  $C$  and  $C'$  are birationally equivalent if and only if  $C$  is nonhyperelliptic, and that, if  $C$  is nonhyperelliptic, then  $C'$  is equal to the blowup of  $C$  with respect to  $\omega$ .

This talk will report on some current joint work of Renato Vidal Martins and the speaker, which provides refined statements and modern proofs of Rosenlicht's results, plus a determination of just when  $C'$  is rational normal, arithmetically normal, projectively normal, and linearly normal.

Tuesday March 4th  
3:00 p.m.  
Harvard Science Center  
Room 507