

# Admissible covers and gonality of stable curves

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## Resumo/Abstract:

An admissible cover, in the sense of Harris and Mumford, is a finite map  $\pi : C \rightarrow B$  between nodal curves satisfying a few conditions, one of which is that the map should have simple ramification over the smooth locus of  $B$ , that is, over each smooth point of  $B$  there exists at most one point of  $C$  where  $\pi$  is ramified and this point has ramification index 2. Harris and Mumford showed in [HM] that a stable curve  $C$  is  $k$ -gonal if and only if there is an admissible cover of degree  $k$  from a nodal curve stably equivalent to  $C$ .

In [CS] we studied the gonality of stable curves, introducing some clutching maps for the moduli space of admissible covers constructed in [HM], similar to those existing for the moduli of stable curves. The drawback of working with admissible covers in the sense of Harris and Mumford is that, when performing clutching constructions for finite maps  $\pi : C \rightarrow \mathbb{P}^1$  where  $C$  is smooth and  $\pi$  is non admissible, one might end with a cover of an artificially higher degree and thus the bounds on the gonality on the resulting nodal curve may also be higher than they should be. To fix this problem, in this talk we use admissible covers in the sense of Abramovich-Corti-Vistoli [ACV], where there is no requirement on the ramification, to study the gonality of stable curves, focusing on the case of curves of compact type.

## Bibliography:

[ACV] D. Abramovich, A. Corti and A. Vistoli, *Twisted bundles and admissible covers*, Comm. in Alg. 31 (2003), n.8.

[CS] J. Coelho and F. Sercio, *On the gonality of stable curves*, accepted for publication in Math. Nachr.

[HM] J. Harris and D. Mumford, *On the Kodaira dimension of the moduli space of curves*, Invent. Math. 67 (1982), n.1.