Projective normality of projective curves

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Green and Lazarsfeld ([1]) proved that a very ample line bundle $\mathcal{L}$ on a smooth curve X is normally generated if $\deg\mathcal{L} \geq 2g + 1 - 2h^1(\mathcal{L}) - \mathrm{Cliff}(X)$. They also gave the conditions when a very ample line bundle is an extremal line bundle in a sense of Green and Lazarsfeld, i.e., a non-normally generated very ample line bundle $\mathcal{L}$ with $\deg\mathcal{L} = 2g - 2h^1(\mathcal{L}) - \mathrm{Cliff}(X)$ on smooth curves X having large genus compared with the Clifford index of X. In this talk, we discuss about the extremal line bundles $\mathcal{L}$ on smooth curves X with small genus compared with the Clifford index of X and on smooth curves X which are multiple coverings of smooth plane curves.

References

[1] Green, M. and Lazarsfeld, R., On the projective normality of complete linear series on an algebraic curve, Invent. Math. **83** (1986), 73–90.