Families of Special Weierstrass Points*

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Abstract

The purpose of this note is to show that loci of (special) Weierstrass points on the fibers of a family $\pi : X \rightarrow S$ of smooth curves of genus $g \geq 2$ can be studied by simply pulling back the Schubert calculus naturally living on a suitable Grassmann bundle over $X$. Indeed, there is a canonical embedding of the total space of a family as a section of such a bundle. It turns out that loci of Weierstrass points are intersection of the image of the section with certain distinguished Schubert varieties. Using such an idea we prove new results regarding the decomposition in $A_*(X)$ of the class of the locus of Weierstrass points having weight at least 3 as the sum of classes of Weierstrass points having “bounded from below” gaps sequences.

*Work partially sponsored by PRIN “Geometria sulle Varietà Algebriche” (Coordinatore A. Verra), INDAM-GNSAGA, Politecnico di Torino and FAPESP-Brazil, Processo 2008/04401-1.