

# On the degree of the Gauss map for the Theta Divisor of a Prym

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It will be briefly discussed the stratification of the moduli space  $\mathcal{A}_g$ , (of principally polarized abelian varieties  $(A, \Theta)$  of dimension  $g$ ), by the degree of the Gauss map for the theta divisor  $\Theta$ . Then some geometric descriptions of the Gauss map for the theta divisor of a Prym variety  $(P, \Xi)$  will be considered. In particular, if  $(P, \Xi)$  is the Prym defined by the étale double covering  $\pi : \tilde{C} \rightarrow C$ , there will be some emphasis on the relations between  $\Xi$  and the family of rank three quadrics touching the canonical model of the curve  $C$ . These relations will be used to compute the degree of the Gauss map in the case of a general Prym variety, which is

$$2^{g-3} + D(g)$$

where  $D(g)$  is the degree of the variety parametrizing quadrics of  $P^{g-1}$  having rank  $\leq 3$ , ( $g - 1 = \dim P$ ,  $g \geq 3$ ). Some special examples and some other possible combinatorial interpretations of this number will be discussed.