

## A signed count of 2-torsion points on real Abelian varieties

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**Abstract.** We prove that a natural signed count of the 2-torsion points on a real, principally polarized Abelian variety  $A$  always equals to  $2^g$ , where  $g$  is the dimension of  $A$ . When  $A$  is the Jacobian of a real curve, we derive signed counts of real odd theta characteristics. These can be interpreted in terms of the extrinsic geometry of contact hyperplanes to the canonical embedding of the curve. We also formulate a conjectural generalization to arbitrary fields in terms of the  $\mathbb{A}^1$ -enumerative geometry.

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