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On the existence of Weierstrass gap sequences on curves of genus ≤ 8. (English)

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Let C be a complete nonsingular irreducible 1-dimensional algebraic variety of genus g over the field $\mathbb{C}$ of complex numbers. Let $\mathbb{N}$ be the additive semigroup of non-negative integers. Let $K(C)$ denote the field of rational functions on C. An subsemigroup H of $\mathbb{N}$ is Weierstrass if there exists a pointed curve (C, P) such that $H(P) = \{h \in \mathbb{N} \mid \text{there exists } f \in K(C) \text{ with } (f)_\infty = hP\} = H$. In this paper the author proves that any numerical semigroup H (a subsemigroup of $\mathbb{N}$ whose complement $\mathbb{N}\backslash H$ in $\mathbb{N}$ is finite) of genus $g \leq 7$ is Weierstrass. Moreover, in the cases $g = 8$ he proves that all primitive numerical semigroups are Weierstrass, i.e., twice the smallest positive integer in $H >$ the largest integer in $\mathbb{N}\backslash H$.

Reviewer: E.Bujalance (Madrid)

MSC:

14H55 Riemann surfaces; Weierstrass points; gap sequences
14H45 Special algebraic curves and curves of low genus

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