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Weierstrass gap sequences at points of curves on some rational surfaces. (English)

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Summary: Let $\tilde{C}$ be a non-singular plane curve of degree $d \geq 8$ with an involution σ over an algebraically closed field of characteristic 0 and $\tilde{P}$ a point of $\tilde{C}$ fixed by σ. Let $\pi : \tilde{C} \to C = \tilde{C}/\langle\sigma\rangle$ be the double covering. We set $P = \pi(\tilde{P})$. When the intersection multiplicity at $\tilde{P}$ of the curve $\tilde{C}$ and the tangent line at $\tilde{P}$ is equal to $d-3$ or $d-4$, we determine the Weierstrass gap sequence at P on C using blowing-ups and blowing-downs of some rational surfaces.

MSC:

14H55 Riemann surfaces; Weierstrass points; gap sequences
14H50 Plane and space curves
14H30 Coverings of curves, fundamental group
14J26 Rational and ruled surfaces

Keywords:

Weierstrass gap sequence; Weierstrass semigroup; smooth plane curve; double covering of a curve; blowing-up of a rational surface

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