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Rational curves on lattice-polarised K3 surfaces. (English) Zbl 07550577
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Summary: Fix a K3 lattice $\Lambda$ of rank 2 and a big and nef divisor $L \in \Lambda$ that is suitably positive. We prove that the generic $\Lambda$-polarised K3 surface has an integral nodal rational curve in the linear system $|L|$, in particular strengthening previous work of the first-named author. The technique is by degeneration and also works for many lattices of higher rank.

MSC:
14J28 K3 surfaces and Enriques surfaces
14N35 Gromov-Witten invariants, quantum cohomology, Gopakumar-Vafa invariants, Donaldson-Thomas invariants (algebro-geometric aspects)
14D06 Fibrations, degenerations in algebraic geometry
14H45 Special algebraic curves and curves of low genus

Keywords:
K3 surface; rational curve; lattice polarisation; degenerations of curves and surfaces

Full Text: DOI