On the injectivity of the specialization homomorphism

(Talk)

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(joint work with Ivica Gusić)

We present the results of the article [GT]. Let

$$E : y^2 = (x - e_1)(x - e_2)(x - e_3),$$

be a nonconstant elliptic curve over $\mathbb{Q}(T)$. We give sufficient conditions for a specialization homomorphism to be injective.

We present an application of this result for calculating exactly the Mordell-Weil group of several elliptic curves over $\mathbb{Q}(T)$ coming from a paper by Rubin and Silverberg [RS].

MSC2010: 11G05, 14H52.

Keywords: elliptic curve, specialization homomorphism, rank, generators.

Section: number theory.

References

[GT] I. Gusić and P. Tadić, *A remark on the injectivity of the specialization homomorphism*, to appear in Glas. Mat. Ser. III.

[RS] K. Rubin, A. Silverberg, *Rank frequencies for quadratic twists of elliptic curves*, Experiment. Math. 10, no. 4 (2001), 559-570.

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