

Minimality criteria for rational maps with good reduction on the projective line over \mathbf{Q}_p

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Abstract

In this talk, we provide the minimality criterion for a rational map of at least degree 2 with good reduction on the projective line $\mathbb{P}^1(\mathbf{Q}_p)$ over \mathbf{Q}_p . This criterion enables us to obtain a complete description of minimal conditions for such a map on $\mathbb{P}^1(\mathbf{Q}_p)$ in terms of its coefficients for $p = 2$ or 3. For an arbitrary prime $p \geq 5$, we present a method of characterizing minimal rational maps ϕ of degree ≥ 2 on $\mathbb{P}^1(\mathbf{Q}_p)$, provided that the prescribed conditions for the reduction of ϕ on $\mathbb{P}^1(\mathbf{F}_p)$ to be transitive are known. This is a joint work with Dohyun Ko, Yongjae Kwon and Youngwoo Kwon.