1147-13-322 **Kazuhiko Kurano***, School of Science and Technology, Meiji University, Higashimita 1-1-1, Tama-ku, Kawasaki, Kanagawa 214-8571, Japan. *Rationality of the negative curve and finite generation of symbolic Rees rings.*

Let K be a field. Let a, b, c be pairwise coprime positive integers such that $\sqrt{abc} \notin \mathbb{N}$. Let X be the weighted projective space $\mathrm{Proj}(K[x,y,z])$ with $\deg(x) = a$, $\deg(y) = b$, $\deg(z) = c$, respectively. Let $f : Y \to X$ be the blow-up at the smooth point defined by the kernel P of the K-algebra map $K[x,y,z] \to K[T]$ defined by $x \mapsto T^a$, $y \mapsto T^b$, $z \mapsto T^c$. Let E be the exceptional divisor. If the symbolic Rees ring $R_s(P)$ (equivalently, the Cox ring of Y) is Noetherian, there exists a curve C ($\neq E$) such that $C^2 < 0$.

In this talk, we give some sufficient condition for the negative curve to be rational. All examples (that I know) of negative curves satisfy this condition. Therefore, I do not know any examples of non-rational negative curves.

Assume that there exists a negative curve C. Then $R_s(P)$ is Noetherian if and only if there exists a curve D on Y such that $C \cap D = \emptyset$. (The defining equations of C and D satisfy the Huneke's criterion for finite generation.) In the case where C is rational, it is possible to estimate the degree of $f(D)$. Using computers, it is possible to determine whether $R_s(P)$ is Noetherian in some cases. (Received January 19, 2019)