#### 代数幾何学シンポジウム記録

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- k = 1: classical result
- k = 2: Alexeev and Nikulin, Nakayama

# Generalize the idea of [AN] to the k = 3 case!

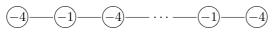
- Review of [AN] (k = 2 case) -

- Smooth Divisor Theorem  $\exists C \in |-2K_Z|$  s.t. C: smooth curve and  $C \not\ni$  singularities.
- Right resolution

In general, we get the following dual graph by the minimal resolution.



 $\uparrow$ : blow up at all intersection points



• Classification of non-symplectic involutions on K3 surfaces by Nikulin

We get a correspondence between K3 surfaces with a non-symplectic involution and log del Pezzo surfaces of index 2.

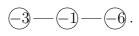
### Example

- Main Theorem (k = 3 case)

There exists a correspondence between K3surfaces with a non-symplectic automorphisms of order 3 and log del Pezzo surfaces of index 3.

- Multiple Smooth Divisor Property  $\exists 2C \in |-3K_Z|$  s.t. C : smooth curve and  $C \not\ni$  singularities.
- Right resolution

It is a successive union of the unit chain



• Classification of non-symplectic automorphisms of order 3 on K3 surfaces by Artebani and Sarti, Taki (independently)

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There exists a log del Pezzo surface of index 3 which does not satisfy MSDP. (ex.  $\mathbb{P}(1, 1, 3)$ ) Thus the observation does not give the complete classification.

