

FUNCTORIAL RESOLUTION EXCEPT OF TOROIDAL LOCUS

Jaroslav Włodarczyk

Purdue University (West Lafayette, IN, United States)

Let X be any variety in characteristic zero. Let $V \subset X$ be an open subset which has toroidal singularities. We show existence of a canonical desingularization $f : Y \rightarrow X$ except of V which does not modify the subset V , and transforms X into a toroidal variety Y , with singularities extending those on V . Moreover the exceptional divisor has simple normal crossings on Y . The theorem naturally generalizes the Hironaka canonical desingularization which does not modify the nonsingular locus V and transforms X into a nonsingular variety Y .

The proof uses, in particular, the canonical desingularization of logarithmic varieties recently proved by Abramovich -Temkin-Włodarczyk, and the canonical desingularization of locally toric varieties with an unmodified open toroidal subset proven by the author.

As an application we show existence of a toroidal equisingular compactification of toroidal varieties.