

# **The dimension of a triangulated category and central ring actions**

Henning Krause (Paderborn)

The Representation Dimension  
of Artin Algebras

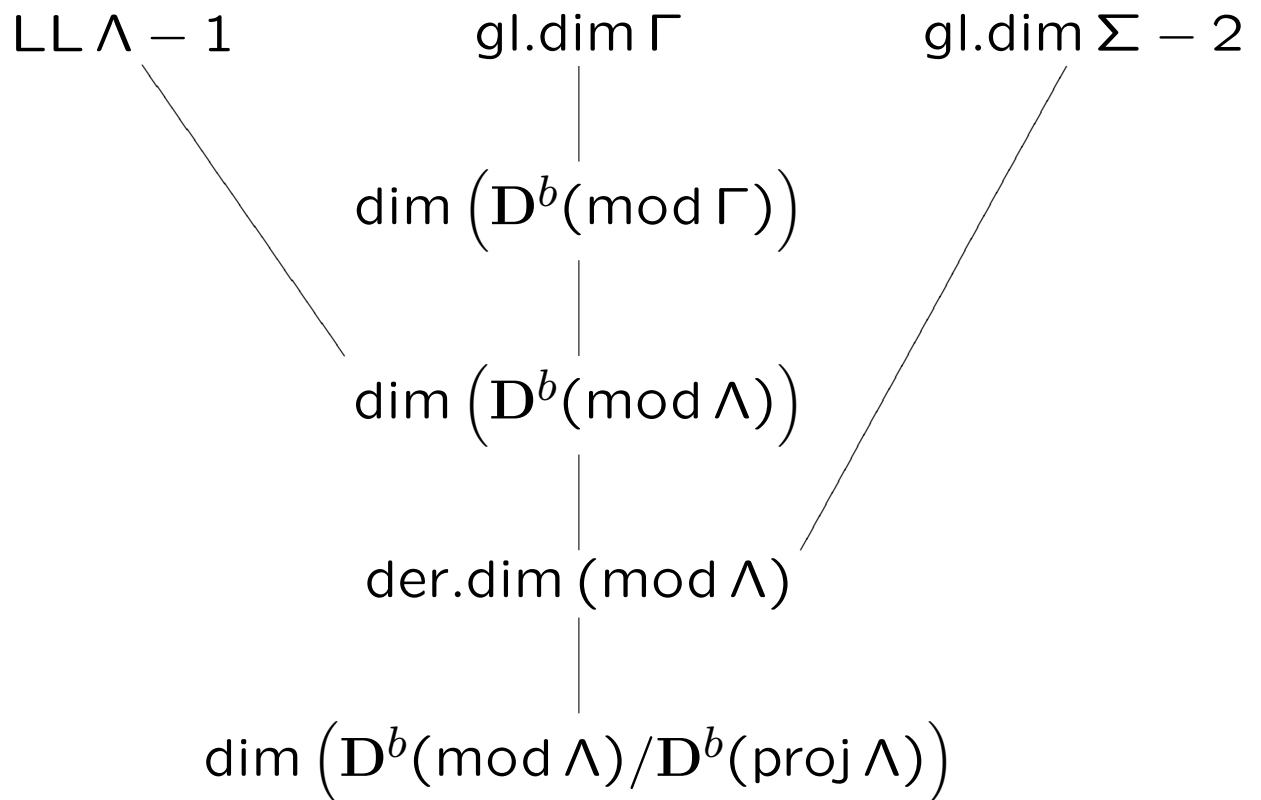
Bielefeld, May 1 – 4, 2008

Paper and slides are available from:

[www2.math.upb.de/~henning-krause](http://www2.math.upb.de/~henning-krause)

## Dimensions for Artin algebras

---



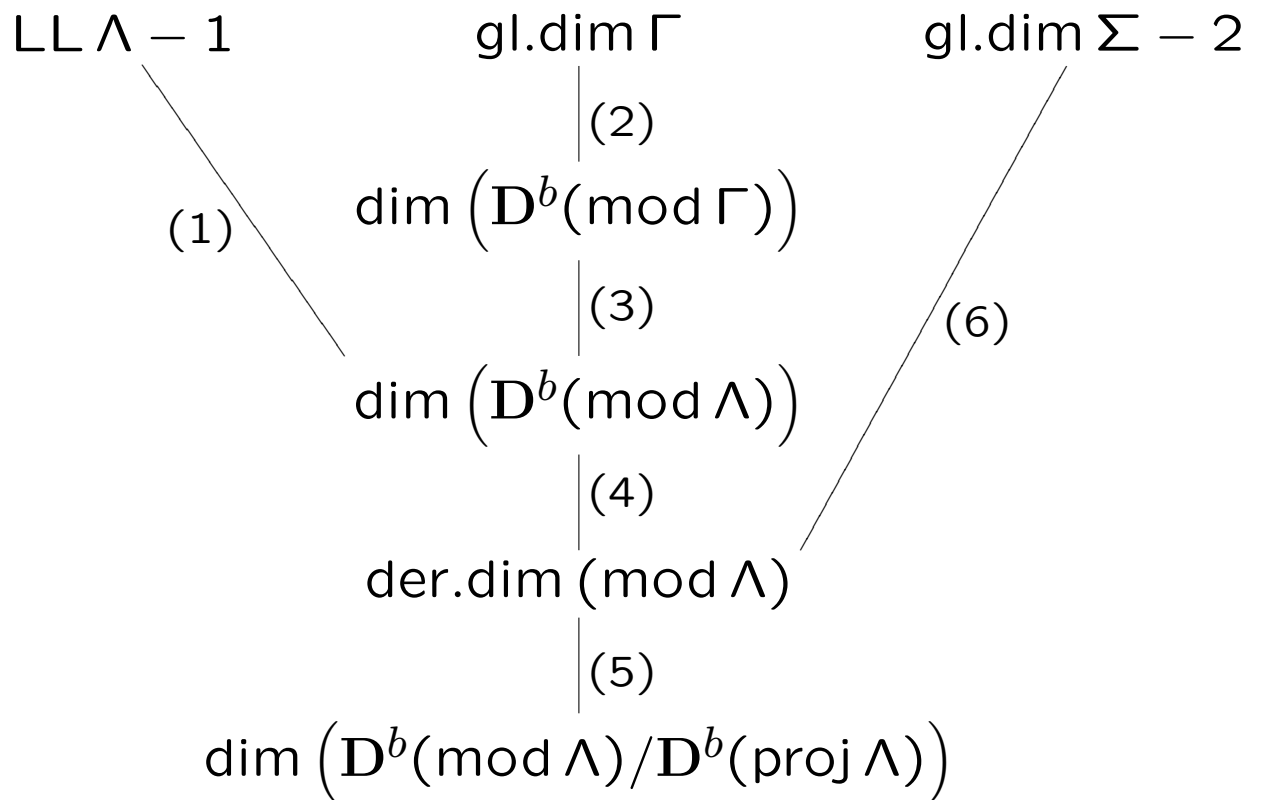
$\Lambda =$  an Artin algebra

$\Gamma = \text{End}_{\Lambda}(M)$ ,  $M \in \text{mod } \Lambda$  any generator

$\Sigma = \text{End}_{\Lambda}(N)$ ,  $N \in \text{mod } \Lambda$  any generator and cogenerator ( $\Sigma$  not semi-simple)

## Dimensions for Artin algebras

---



$\Lambda =$  an Artin algebra

$\Gamma = \text{End}_\Lambda(M)$ ,  $M \in \text{mod } \Lambda$  any generator

$\Sigma = \text{End}_\Lambda(N)$ ,  $N \in \text{mod } \Lambda$  any generator and cogenerator ( $\Sigma$  not semi-simple)

## **References (in chronological order)**

---

### **Dimensions:**

M. Auslander: Representation dimension of artin algebras (1971).

R. Rouquier: Dimensions of triangulated categories (2005).

R. Rouquier: Representation dimension of exterior algebras (2006).

H. Krause and D. Kussin: Rouquier's theorem on representation dimension (2006).

S. Oppermann: Lower bounds for Auslander's representation dimension (2008).

### **Center:**

R.-O. Buchweitz and H. Flenner: Global Hochschild (co-)homology of singular spaces (2006).