



# BCM-SINGULARITIES

4<sup>th</sup> meeting on singularities  
Brazil-Chile-Mexico



March 11-15, 2019, Talca, VII Región, Chile

---

## Motivic Zeta Functions and Quotient Singularities

**Edwin León-Cardenal\***

CONACYT – Centro de Investigación en Matemáticas,  
Unidad Zacatecas.  
Zacatecas, Mexico

### Abstract

A  $V$ -manifold  $X$  is a complex analytic manifold that locally looks like  $\mathbb{C}^n/G$  with  $G$  a finite subgroup of  $GL_n(\mathbb{C})$ . In [1], Denef & Loeser, interested in the motivic version of the McKay Correspondance, start the study of motivic measures for  $V$ -manifolds. We continue this line of research by giving a motivic measure for  $\mathbb{Q}$ -Gorenstein varieties and a version of a motivic local zeta function for  $\mathbb{Q}$ -divisors in  $\mathbb{Q}$ -Gorenstein varieties. Our main result is a formula for the motivic local zeta function in terms of the local action of the isotropy groups appearing in a  $\mathbb{Q}$ -resolution of  $X$ . This gives a generalization of some results of Veys in [3] for the topological zeta function of curves.

Joint work with:

**Jorge Martín-Morales**<sup>1</sup>, Academia General Militar, Ctra. de Huesca s/n., Zaragoza, Spain.

**Wim Veys**<sup>2</sup>, Department of Mathematics, University of Leuven (KU Leuven), Leuven, Belgium.

**Juan Viu-Sos**<sup>3</sup>, Instituto de Ciências Matemáticas e de Computação, Universidade de São Paulo, São Carlos, Brazil.

## References

- [1] DENEFF, JAN; LOESER, FRANÇOIS, *Motivic integration, quotient singularities and the McKay correspondence*, Compositio Math. **131** (3), (2002). 267–290.
- [2] MARTÍN-MORALES, JORGE, *Monodromy zeta function formula for embedded  $\mathbb{Q}$ -resolutions*, Rev. Mat. Iberoam. **29** (3), (2013). 939–967.
- [3] VEYS, WIM, *Zeta functions for curves and log canonical models*, Proc. London Math. Soc. (3) **74** (2), (1997). 360–378.

---

\*Partially supported by CONACYT Grant No. 286445, e-mail: edwin.leon@cimat.mx

<sup>1</sup>e-mail: jorge@unizar.es

<sup>2</sup>e-mail: wim.veys@kuleuven.be

<sup>3</sup>e-mail: jviusos@math.cnrs.fr