

THE WORK OF ENRIQUE ARTAL BARTOLO
ON
THE TOPOLOGY OF SINGULARITIES

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Algebraic and topological interplay of algebraic varieties

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OVERVIEW

- ▶ The work of Enrique spans more than three decades (1990–2023).
- ▶ His research covers many areas of mathematics, including
 - Algebraic Geometry
 - Algebraic Topology
 - Commutative Algebra
 - Group Theory
 - Hyperplane Arrangements
 - Several Complex Variables
 - Singularity Theory
- ▶ He has written some 90 papers, with at least 32 collaborators.

HYPERPLANE ARRANGEMENTS

- ▶ *Sur le premier nombre de Betti de la fibre de Milnor du cône sur une courbe projective plane et son rapport avec la position des points singuliers*, 1990.
- ▶ *Combinatorics and topology of line arrangements in the complex projective plane*, Proc. Amer. Math. Soc. 1994.
- ▶ *Topology and combinatorics of real line arrangements* (with Jorge Carmona, José Cogolludo, and Marco Buzunáriz), Compos. Math. 2005.
- ▶ *Invariants of combinatorial line arrangements and Rybnikov's example*, (with Jorge Carmona, José Cogolludo, and Marco Buzunáriz), Adv. Stud. Pure Math. 2006.
- ▶ *A topological invariant of line arrangements* (with Benoît Guerville-Ballé and Vincent Florens), Ann. Sc. Norm. Super. Pisa 2017.

CHARACTERISTIC VARIETIES AND BRAID MONODROMY

- ▶ *Braid monodromy and topology of plane curves* (with Jorge Carmona and José Cogolludo), Duke Math. J. 2003.
- ▶ *Essential coordinate components of characteristic varieties* (with Jorge Carmona and José Cogolludo), Math. Proc. Cambridge Philos. Soc. 2004.
- ▶ *Braid monodromy and topology of plane curves* (with Jorge Carmona and José Cogolludo), Trans. Amer. Math. Soc. 2007.
- ▶ *Characteristic varieties of quasi-projective manifolds and orbifolds*, (with José Cogolludo and Daniel Matei), Geom. Topol. 2013.
- ▶ *Depth of cohomology support loci for quasi-projective varieties via orbifold pencils* (with José Cogolludo and Anatoly Libgober), Rev. Mat. Iberoam. 2014.

ZARISKI PAIRS

- ▶ *Sur les couples de Zariski*, J. Algebraic Geom. 1994.
- ▶ *Zariski pairs, fundamental groups and Alexander polynomials* (with Jorge Carmona), J. Math. Soc. Japan 1998.
- ▶ *Zariski pairs of index 19 and Mordell–Weil groups of $K3$ surfaces* (with Hiro-o Tokunaga), Proc. London Math. Soc. 2000.
- ▶ *A survey on Zariski pairs* (with José Cogolludo and Hiro-o Tokunaga), Adv. Stud. Pure Math. 2008.
- ▶ *An arithmetic Zariski pair of line arrangements with non-isomorphic fundamental group* (with José Cogolludo, Benoît Guerville-Ballé, and Marco Buzunáriz), RACSAM 2017.

SINGULARITY THEORY

- ▶ *Sur la topologie des polynômes complexes* (with Pierette Cassou-Noguès and Alexandru Dimca), Progr. Math. 1998.
- ▶ *Monodromy conjecture for some surface singularities* (with Pierette Cassou-Noguès, Ignacio Luengo, and Alejandro Melle), Ann. Sci. École Norm. Sup. 2002.
- ▶ *Quasi-ordinary power series and their zeta functions* (with Pierette Cassou-Noguès, Ignacio Luengo, and Alejandro Melle), Mem. Amer. Math. Soc. 2005.
- ▶ *Milnor number of weighted Lê–Yomdin singularities* (with Javier Fernández de Bobadilla, Ignacio Luengo, and Alejandro Melle), Int. Math. Res. Not. 2010.

GROUP THEORY

- ▶ *Quasi-projectivity, Artin–Tits groups, and pencil maps* (with José Cogolludo and Daniel Matei), *Contemp. Math.* 2011.
- ▶ *Arrangements of hypersurfaces and Bestvina–Brady groups* (with José Cogolludo and Daniel Matei), *Groups Geom. Dyn.* 2015.
- ▶ *Fundamental groups of real arrangements and torsion in the lower central series quotients* (with Benoît Guerville-Ballé and Juan Viu Sos), *Exp. Math.* 2020.
- ▶ *Module structure of the homology of right-angled Artin kernels* (with José Cogolludo, Santiago López de Medrano, and Daniel Matei), *Algebr. Geom. Topol.* 2022.

Happy Birthday, Enrique!