

PROCEEDINGS OF THE INTERNATIONAL MEETING

“Algebraic Methods in Geometry: Commutative and Homological Algebra in Foliations and Singularities”

In honor of Xavier Gómez-Mont on the occasion of his 60th Birthday
Anniversary
Guanajuato, México, 2011

Edited by: Pedro Luis del Angel, Laura Ortiz-Bobadilla, José Seade and Alberto Verjovsky

These are the proceedings of the School and Conference “Algebraic Methods in Geometry: Commutative and Homological Algebra in Foliations and Singularities”, held at the Centro de Investigación en Matemáticas (CIMAT), in Guanajuato, Mexico, during August 22nd to September 2nd of 2011. This meeting was in celebration of the 60th Birthday Anniversary of Xavier Gómez-Mont, and it was mainly devoted to the research topics covered by Gómez-Mont.

Xavier Gómez-Mont is a Mexican mathematician who finished his Ph.D. at Princeton University in 1978 sponsored by the Universidad Nacional Autónoma de México (UNAM). At Princeton he worked with R. C. Gunning and he also profited from conversations with Bill Thurston, conversations that left a deep track in the --those days-- young Gómez-Mont. After finishing his Ph.D., he joined the Institute of Mathematics at the UNAM, and then, in 1987 he moved to CIMAT, where he has been working since that time. During all these years he has been a world leading mathematician and a pillar of mathematics in Mexico and Latin America.

The early works of Xavier Gómez-Mont were on holomorphic foliations, making significant contributions to laying down the foundations of the theory. Among other contributions to the subject, he was one of the first in studying holomorphic foliations using tools and methods from Algebraic Geometry. He also proved striking theorems for codimension one holomorphic foliations in the spirit of Ahlfors’ finiteness theorem and Sullivan’s non-wandering domains theorem. In the 1990s, Gómez-Mont started working on indices of vector fields, and his research led to a remarkable index for holomorphic vector fields on singular varieties, called the homological index. This relies heavily on homological algebra and a certain Koszul complex. Part of that line of research is the “Gobelin”: A certain double complex which is so fine and sophisticated that makes you think of a master piece of tapestry, hence the name “Gobelin”. In Gómez-Mont’s research

one always finds algebra and geometry intertwined with dynamics, and this beautifully leads also to his work on the “foliated geodesic flow” and statistical methods to studying holomorphic foliations.

Each of the articles contained in this volume is an interesting piece of work on its own, and together they give a glimpse of important areas of mathematics where Gómez-Mont has made significant contributions.

Algebraic Methods in Geometry: Commutative and Homological

Algebra in Foliations and Singularities

School and Conference in honor of Xavier Gómez-Mont
on the occasion of his 60th Birthday

Scientific Committee:

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Federico Sánchez.

Speakers in the School (August 22 to August 27)

Bonatti, Christian
Brunella, Marco
Calvo, Omegar
Castellanos, Víctor
Deroin, Bertrand
Sibony, Nessim
Ilyashenko, Yulij
Miranda, Rick
Pereira, Jorge Vitorio
Reynoso, Claudia
Rosales, Ernesto

Speakers in the Conference (August 29th to September 2nd, 2011)

Aleksandrov, Alexander G.
Bonatti, Christian
Camacho, César
Cano, Felipe
Cukierman, Fernando
Deserti, Julie
Ebeling, Wolfgang
Ghys, Etienne
Giraldo, Luis
Graf v. Bothmer, Hans-Christian
Guillot, Adolfo
Lins Neto, Alcides

Mardesic, Pavao
Martínez, Matilde
Mattei, Jean-François
McQuillan, Michael
Muciño, Jesús
Nicolau, Marcel
Ortiz, Laura
Pereira, Jorge Vitorio
Sad, Paulo
Seade, José
Soares, Marcio
Sullivan, Dennis
Teissier, Bernard
Vainsencher, Israel
Valdez, Ferrán
Verjovsky, Alberto

Poster Session

Alarcón, Begoña
Barreto, Yadira Lizeth
Correa, Mauricio J.R
Hinojosa, Gabriela
López-González, Elifalet
Ramírez, Valente
Reza Rahmati, Mohammad
Suárez-Serrato, Pablo