WORKSHOP "POLYNOMIAL AUTOMORPHISMS"
JANUARY 31 - FEBRUARY 2, 2008, DIJON
LIST OF TALKS

• Jérémy BLANC (Université Grenoble I)

Title : Isomorphism between affine surfaces as birational transformations of projective surfaces

Abstract : Any isomorphism between two affine surfaces may be viewed as a birational transformation between two projective surfaces. The latter can be explained via blow-ups and contractions of curves. We will try to explain some general techniques on the subject and will present some examples, in the case when the affine surface is the complement of an irreducible curve in the projective plane.

• Michiel de BONDT (Radboud Universiteit Nijmegen)

Title : Symmetric Keller maps

Abstract : We will investigate several symmetry patterns of the Jacobian of a Keller map. We discuss properties of these maps and ask ourselves the question: Does the Jacobian conjecture reduce to maps with these symmetries ?

• Adrien DUBOULOZ (Université de Bourgogne, Dijon)

Title : Automorphisms of affine spaces and birational geometry

Abstract : We discuss how the usual notions concerning polynomial automorphisms should be translated to fit in the geometrical context in which every automorphism of the affine space is considered as a birational transformation of a projective space. After reviewing the 2-dimensional case, we give perspectives and make conjectures about the automorphism group in dimension 3.

• François DUMAS (Université Blaise Pascal, Clermont-Ferrand)

Title : Automorphisms and invariants of noncommutative power series rings

Abstract : The main situation considered in the talk concerns the noncommutative ring $R((x;\delta))$ of pseudodifferential operators in one variable x with coefficients in a commutative $\mathbb{C}$-algebra R and commutation law twisted by a derivation δ of R. For any group Γ acting by automorphisms on R, we study the extensions of the action to B and determine the associated invariants rings B^Γ. This results apply in particular to the local extensions of the Weyl skewfield $D_1(\mathbb{C})$, and to noncommutative structures defined from Rankin-Cohen brackets on some spaces of modular forms.

• Stefan MAUBACH (Radboud Universiteit Nijmegen)

Title : The Nagata automorphism is shifted linearizable

Abstract : In order to link this talk to the introductory mini-courses, I will start with stating some known conjectures about generators of the automorphism group. Then I will talk about something funny I discovered in collaboration with P-M. Poloni : As is well-known the famous Nagata automorphism is not linearizable (it is not even triangularizable). However, to our own surprise Nagata is "shifted" linearizable. What is shifted linearizable? Well, I don't want to spoil the surprise! Let me say that this result inclined us to make another conjecture about the automorphism group.

• Stéphane VÉNÉREAU (Universität Basel)

Title : A parachute for the degree of a polynomial in algebraically independent ones

Abstract : We give a simpler proof as well as a generalization of the first of the two already famous articles of Shestakov and Umirbaev about wildness of Nagata's automorphism. As corollaries we get interesting informations about the leading terms of polynomials forming an automorphism of $K[x_1,\ldots,x_n]$ and reprove the tameness of automorphisms of $K[x_1,x_2]$.

• Roel WILLEMS (Radboud Universiteit Nijmegen)

Title : Graphs and the Jacobian Conjecture

Abstract : I will talk about the Jacobian Conjecture and its equivalency to the Vanishing Conjecture as described by W. Zhao in his article "Hessian Nilpotent Polynomials and the Jacobian Conjecture". Furthermore I will talk about how to represent such HN polynomials as graphs and some result on which graphs can and cannot appear with HN polynomials.