Symposium Michel Kervaire — Geneva, February 10–13, 2009
Auditorium MR070 in Uni Mail

PRELIMINARY PROGRAMME

(February 7 version)

Tuesday February 10

9h30 Opening of the Symposium.
9h40–10h40 Sylvain Cappell I: *Different knots with the same complement.*
Coffee–break.
11h15–12h00 Eva Bayer: *Quadratic forms.*

14h00–14h45 Boas Erez: *Lessons from an inspiring teacher.*
15h00–15h45 Roger Fenn I: *One of Michel's conjectures and what it has to do
        with cantons and crashing border guards.*
Coffee–break.
16h15 John Milnor: *The geometry of growth and form.*

17h30 Apéritif, in
SECTION DE MATHÉMATIQUES, 2–4 RUE DU LIÈVRE, 2nd FLOOR.

Wednesday February 11

9h30–10h30 Andrew Ranicki I: *On Michel Kervaire's work in surgery and knot theory.*
Coffee–break.
11h00–12h00 Sylvain Cappell II: *Singularities of maps and global invariants.*

14h00–14h45 Shalom Eliahou: *On selected joint results with Michel Kervaire.*
15h00–15h45 Françoise Michel: *Higher dimensional knots according to Kervaire.*
Coffee–break.
16h15–1715 Vaughan Jones I: *Planar algebras and subfactors.*

Thursday February 12

9h30–10h30 Cameron Gordon I: *Unsolvable problems about higher-dimensional
        knot groups.*
Coffee–break.
11h00–12h00 Andrew Ranicki II

14h00–14h45 Claude Cibils: *The intrinsic fundamental group of an algebra.*
15h00–15h45 Jacques Thévenaz: *Endo-trivial modules for finite groups.*
Coffee–break.
16h15–1700 Roger Fenn II: *What is a knot and how do you recognise one?*

19h00 Symposium dinner in
L'OLIVIER DE PROVENCE, RUE JACQUES–DALPHIN 13, CAROUGE.

Friday February 13

8h45–9h30 Cameron Gordon II: *Surface subgroups of doubles of free groups.*
9h45–10h45 Norbert A'Campo: *Plurisubharmonic levels, dessins d'enfant
        and monodromy.*
Coffee–break.
11h15–12h00 Vaughan Jones II: *Why planar algebras-from 't Hooft to Sudoku.*
12h+ϵ End.

SOME ABSTRACTS

Norbert A'Campo

Plurisubharmonic levels, dessins d'enfant and monodromy. Let the holomorphic function $f : \mathbf{C}^{n+1} \to \mathbf{C}$ have at 0 an isolated singularity. The real function $-1/||df||$ restricts locally near $0 \in \mathbf{C}^{n+1}$ to a fiber-wise plurisubharmonic function and gives in each local fiber, singular or not singular, a retraction on a spinal polyhedron. Let V be this polyhedron in the Milnor fiber F of the singularity. The polyhedron V carries the vanishing topology of the Milnor fiber. The polyhedron V has lagrangian strata. Moreover, the pair (F, V) "knows" how to compute the geometric monodromy. We will make this know-how explicit in the case of plane curve singularities. Important tools are in this case the Belyi function of a dessin d'enfant and graphs in surfaces with periodic "tête-à-tête" structure.

Sylvain Cappell

Different knots with the same complement. We explain using elementary ideas and explicit constructions to what extent knots are determined by their complements.

Singularities of maps and global invariants.
We discuss the interaction between the singularities of maps between manifolds (or more generally, varieties) and the global invariants of the source and image. Comparisons will be made between results in topological and algebraic geometric settings.

John Milnor

The geometry of growth and form. This will be a commentary on the book "On Growth and Form" by D'Arcy Thompson, first published in 1917. In Chapter 17 Thompson studied the geometric transformation between two related animals which carries each visible feature of the first to the corrresponding feature of the second. In many cases, this transformation seems to be approximately conformal. The talk will discuss the extent to which this is true.