

# Mathematics Colloquium

## of the University of Luxembourg

in cooperation with the  
Luxembourg Mathematical Society

Tuesday 14 July 2015, at 5 pm

Campus Kirchberg, Salle des conseils

### Prof. Francis Bonahon

University of Southern California, USA

*Francis Bonahon obtained his PhD in 1979 at Université Paris-Sud (Orsay) where he became a CNRS researcher. In 1986 he moved to the University of Southern California, where he has been professor ever since. He has made seminal contributions to several important areas of mathematics, in particular hyperbolic geometry and 3-dimensional topology.*



### *Kauffman brackets on surfaces*

The classical Kauffman bracket, very closely related to the Jones polynomial, is one of the invariants that mathematicians use to prove that two knotted strings cannot be deformed to each other. Witten's interpretation of the Jones polynomial in the framework of a topological quantum field theory leads to a generalization of Kauffman brackets to knots drawn on a surface. However, there is a new feature: there are many different Kauffman brackets on surfaces, and in particular many more than the original Witten-Reshetikhin-Turaev example. I will discuss invariants of these generalized Kauffman brackets, and partial classification results. This is joint work with Helen Wong.

RMATH contact: Jean-Marc Schlenker  
Coordinator: Stéphane Korvers