Time	Speaker	Talk
14:00	Michele d'Adderio (Université libre de Bruxelles)	**Theta operators and Delta conjectures**
		Abstract: I will present an overview of results and open problems related to so-called diagonal coinvariants of the symmetric group. These problems are naturally connected to Macdonald symmetric functions and their related combinatorics. Both Greek letters mentioned in the title refer to remarkable families of operators on symmetric functions, which play a crucial role in this fascinating story. As the talk aims at "inspiring" more than "explaining", most technical details will be happily swept under the rug, making the talk accessible to a not-so-overscrupulous public.
15:30	Michela Ceria (Università di Milano)	**Combinatorics of ideals of points: Groebner escaliers, separator polynomials and applications to Algebraic Statistics**
		Abstract: In 1990 Cerlienco and Mureddu proved a bijection between the points of a finite set X and the terms in the lexicographical Groebner escalier of the vanishing ideal I(X). Moreover, they gave an algorithm computing these terms, only by means of simple combinatorial tools. This algorithm is iterative on the points and recursive on the variables, so it suffers from a bad complexity. In the first part of this talk, we will describe an alternative algorithm by Ceria-Mora, which maintains the iterativity of Cerlienco-Mureddu algorithm, but avoids recursion by the use of Bar Codes and this improves by far the complexity of the computation. In the second part of this talk, we will deal with separator polynomials. A separator family for X is a set of polynomials, each one corresponding to a point of X, such that each of them takes value one at the corresponding point, whereas it vanishes at any other point of X. A new algorithm by Ceria and Mora computes squarefree separator polynomials. The algorithm, to avoid redundancy, employs as a tool the point trie structure, first defined by Felszeghy-Ráth-Rónyai in their Lex game algorithm, which gives a compact representation of the relation among the points' coordinates. After discussing this algorithm, we will see that a simple arithmetic model is all one needs to specialise our algorithm to produce the indicator functions (as described by Pistone-Rogantin) which represent a fraction of factorial designs.

The talks will take place in Room 1.309 of building PER07 (instutute of geological sciences) at the University of Fribourg.