

**HODGE THEORY OF CHARACTER VARIETIES AND THE  
 $P = W$  CONJECTURE**

TATIHOUS ISLAND, 23-27 JULY 2018

**Monday.**

- 9:00 *Where are we? Where are we going?*  
Luca Migliorini
- 9:30 *The Riemann-Hilbert correspondence for local systems. Examples in dimension one.*  
Marco Maculan
- 10:30 Coffee break
- 11:15 *Standard Hodge theory of  $H^1$  as non abelian Hodge theory.*  
Yichen Qin
- 12:15 Lunch break
- 14:30 *The character variety: construction via Geometric Invariant Theory. Smoothness of the twisted character variety for the fundamental group of a curve.*  
Eloise Hamilton
- 15:30 Coffee break
- 16:15 *Mixed Hodge Structures, the  $W$ -filtration and  $E$ -polynomials.*  
Alex Torzewski

**Tuesday.**

- 9:00 *Where are we? Where are we going?*  
Luca Migliorini
- 9:30 *Computing Betti numbers of character varieties by counting points.*  
Javier Fresán
- 10:30 Coffee break
- 11:15 *Construction of Higgs and de Rham moduli the  $\mathbb{G}_m$  action on the Higgs moduli space.*  
Mauro Porta
- 12:15 Lunch break
- 14:30 *The maps of non abelian Hodge theory.*  
Xiaohua Ai
- 15:30 Coffee break
- 16:15 *Compactified jacobians. Compactified jacobians and affine Springer fibres.*  
Marco d'Addezio

**Wednesday.**

- 9:00 *The Hitchin map: properness.*  
Olivier Benoist
- 10:15 *The fibers of the Hitchin map. The spectral curve construction and the action of relative Picard. BNR correspondence.*  
Camilla Felisetti
- 11:15 Coffee break
- 11:45 *The constructible category, the six functors. t-structures.*  
Mattia Cavicchi
- Free afternoon (coffee free)

**Thursday.**

- 9:00 *Where are we? Where are we going?*  
Luca Migliorini
- 9:30 *Perverse sheaves and the decomposition theorem 1. Intersection cohomology.*  
Paul Ziegler
- 10:30 Coffee break
- 11:15 *Perverse sheaves and the decomposition theorem 2. Motivic nature of the perverse filtration.*  
Simon Pepin Lehalleur
- 12:15 Lunch break
- 14:30 *The  $P = W$  conjecture. Statement. Sketch of main steps for  $A_1$  type. Tautological classes.*  
Dragos Fratila
- 15:30 Coffee break
- 16:15 *The  $P=W$  conjecture for  $A_1$  type. Sketch of main steps monodromy computation.*  
Thomas Krämer

**Friday.**

- 9:00 *Where are we? Where are we going?*  
Luca Migliorini
- 10:30 *A glimpse of the geometric  $P = W$  conjecture of Katzarkov, Noll, Pandit, Simpson.*  
Bruno Klingler