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# REPRESENTATION THEORY

## XVI

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Inter-University Centre, Dubrovnik, Croatia  
June 24<sup>th</sup> – 29<sup>th</sup>, 2019



Scientific Center of Excellence for Quantum and Complex Systems, and Representations of Lie Algebras - QuantiXLie



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This conference was in part supported by the QuantiXLie Centre of Excellence, a project Co-financed by Croatian Government and European Union through the European Regional Development Fund - the competitiveness and Cohesion Programme (Grant KK.01.1.1.01.000).



Operativni program  
**KONKURENTNOST  
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**SCHEDULE: LIE GROUPS SECTION**

**Representation Theory XVI**  
**IUC, Dubrovnik, Croatia, June 23 – 29, 2019**  
**Schedule: Lie Groups Section**

**Monday, June 24**

- 9:00 – 9:50      **Jeffrey Adams:** Unitary representations and Hodge theory
- 10:00 – 10:50    **David Vogan:** The local Langlands conjecture for finite groups of Lie type

**Chair: Pavle Pandžić**

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- 10:50 – 11:10    **Coffee break**
- 11:10 – 12:00    **Victor Kac:** Cohomology of algebraic structures: from Lie algebras to vertex algebras (**Plenary room**)
- 12:10 – 13:00    **Anne Moreau:** Singularities of nilpotent Slodowy slices and collapsing levels for  $W$ -algebras (**Plenary room**)

**Chair: Ozren Perše**

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- 16:00 – 16:50    **Soo Teck Lee:** Highest weight vectors in plethysms
- 17:00 – 17:50    **Adam Brown:** Arakawa-Suzuki functors for Whittaker modules

**Chair: Kyo Nishiyama**

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**Tuesday, June 25**

- 9:00 – 9:50      **Marko Tadić:** On problems showing up in classifying irreducible unitary representations of classical  $p$ -adic groups (NT section, chair Attila Bérczes)
- 10:00 – 10:50    **Dan Ciubotaru:** Positive definite forms and semisimple Jacquet modules

**Chair: David Renard**

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- 10:50 – 11:10    **Coffee break**

- 11:10 – 12:00      **Tomoyuki Arakawa:** Quantum Langlands duality of representations of W-algebras (**Plenary room**)
- 12:10 – 13:00      **Ivan Mirković:** A geometric construction of Witt rings (**Plenary room**)

**Chair: Dražen Adamović**

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- 16:00 – 16:50      **Vít Tuček:** On classification of unitary highest weight modules
- 17:00 – 17:50      **Kyo Nishiyama:** Steinberg theory for symmetric pairs

**Chair: Soo Teck Lee**

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### Wednesday, June 26

- 9:00 – 9:50      **Lucas Mason-Brown:** Unipotent representations and microlocalization
- 10:00 – 10:50      **Annegret Paul:** Nilpotent Orbits in atlas

**Chair: Jeffrey Adams**

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- 10:50 – 11:10      **Coffee break**
- 11:10 – 12:00      **Anna Romanov:** A Kazhdan--Lusztig algorithm for Whittaker modules (**Plenary room**)
- 12:10 – 13:00      **Pierluigi Moseneder Frajria:** Conformal embeddings in basic classical Lie superalgebras (**Plenary room**)

**Chair: Antun Milas**

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## Thursday, June 27

9:00 – 9:50 **Hrvoje Kraljević:** On freeness of  $U(\mathfrak{g})$  as the  $U(\mathfrak{g})^K$ -module and action of  $K \times K$  on  $U(\mathfrak{g})$  for real simple Lie algebra  $\mathfrak{g}$

**Chair: Hendrik De Bie**

10:00 – 10:50 **Goran Muić:** Existence of cuspidal automorphic forms for reductive groups over number fields (Plenary room; chair Marko Tadić)

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10:50 – 11:10 **Coffee break**

11:10 – 12:00 **Dan Barbasch:** Dirac cohomology for complex classical groups

12:10 – 13:00 **Dragan Miličić:** A geometric formula for  $u$ -homology of representations and some applications

**Chair: Wilfried Schmid**

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16:00 – 16:50 **Salah Mehdi:** Spectrum of locally symmetric spaces and branching rules

17:00 – 17:50 **Hendrik De Bie:** The Racah algebra and multivariate Racah polynomials

**Chair: Jing-Song Huang**

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## Friday, June 28

9:00 – 9:50 **David Renard:** Sakellaridis-Venkatesh conjectures for the discrete spectrum of a real classical symmetric space

10:00 – 10:50 **Jing-Song Huang:** Generalized Fourier transforms arising from  $\mathfrak{sl}(2)$ -triples and Cartan involutions

**Chair: Hrvoje Kraljević**

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10:50 – 11:10 **Coffee break**

11:10 – 12:00 **Wilfried Schmid:** Hodge theory and unitary representations of reductive groups

**Chair: Dan Barbasch**

12:10 – 13:00 **Open problems session (moderated by David Vogan)**

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16:00 – 16:50

**Gaywale Yamasuklna:** On Indecomposable **N**-graded Vertex Algebras

**Chair:** Ante Čeperić