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# REPRESENTATION THEORY

## XVIII

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Inter-University Centre, Dubrovnik, Croatia  
June 25<sup>th</sup> – July 1<sup>st</sup>, 2023



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



Europska unija  
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EUROPSKI STRUKTURNI  
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Operativni program  
**KONKURENTNOST  
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**SCHEDULE: VERTEX ALGEBRA SECTION**

**Representation Theory XVIII**  
**IUC, Dubrovnik, Croatia, June 25 – July 1, 2023**  
**Schedule: Vertex algebra Section**

**Monday, June 26**

9:00 – 9:50 **Victor Kac:** Unitary representations of minimal W-algebras  
10:00 – 10:50 **David Ridout:** Inverse quantum hamiltonian reduction: a primer

**Chair: Dražen Adamović**

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10:50 – 11:10 **Coffee break**  
11:10 – 11:55 **Ciupo Jiang:** Varieties of vertex operator algebras  $L_k(sl_3)$  for non-admissible levels  $k$   
12:00 – 12:45 **Jinwei Yang:** Recent developments of tensor categories of vertex operator algebras  
12:50 – 13:35 **Pierluigi Moseneder Frajria:** Collapsing chains

**Chair: Antun Milas**

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16:00 – 16:35 **Marijana Butorac:** Combinatorial properties of bases of standard modules for twisted affine Lie algebras  
16:35 – 16:45 **Break**  
16:45 – 17:20 **Lucia Bagnoli:** On the finite irreducible modules over some conformal superalgebras  
17:25 – 18:00 **Kawien Sun:** VOAs associated with intermediate Lie algebra  $E_{7+1/2}$

**Chair: Ana Kontrec**

**Tuesday, June 27**

9:00 – 9:50 **Thomas Creutzig:** Quantum Groups and VOAs  
10:00 – 10:50 **Masahiko Miyamoto:** An application of Borcherds Lie algebra to a proof of  $C_2$ -cofiniteness

**Chair: Ozren Perše**

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10:50 – 11:10 **Coffee break**  
11:10 – 11:55 **Qing Wang:** Orbifold theory of the affine vertex operator superalgebra  $L_{osp(1|2)}(k, 0)$   
12:00 – 12:45 **Naoki Genra:** Reduction by stages on W-algebras  
12:50 – 13:35 **Janik Wilhem:** Reflective forms on orthogonal groups and their expansions at 1-dimensional cusps

**Chair: Ivana Vukorepa**

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16:00 – 16:35 **Veronika Pedić Tomić:** Whittaker Modules for  $\widehat{gl}$  and Non-Tensor Product  $W_{1+\infty}$ -modules  
16:35 – 16:45 **Break**  
16:45 – 17:20 **Zachary Fehily:** The path of hooks  
17:25 – 18:00 **Shigenori Nakatsuka:** On Feigin-Tipunin type extension of  $W$ -algebras

**Chair: Iva Čuže**

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### Wednesday, June 28

9:00 – 9:50 **Chongying Dong:** Coset construction and Kac-Wakimoto set  
10:00 – 10:50 **Paolo Papi:** Some results on unitary highest weight modules for minimal  $W$ -algebra

**Chair: Mirko Primc**

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10:50 – 11:10 **Coffee break**  
11:10 – 11:55 **Li Ren:** Orbifold theory for vertex algebras  
12:00 – 12:45 **Anne Moreau:** Functorial constructions of double Poisson vertex algebras

**Chair: Antun Milas**

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**Free afternoon:**

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### Thursday, June 29

9:00 – 9:50 **Andrew Linshaw:** Universal vertex algebras beyond the  $W_\infty$ -algebras  
10:00 – 10:50 **Ching Hung Lam:** Automorphism groups of cyclic orbifolds of lattice VOAs

**Chair: Tomoyuki Arakawa**

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10:50 – 11:10 **Coffee break**  
11:10 – 11:55 **Nina Yu:** On irreducibility of modules of Whittaker type  
12:00 – 12:45 **Reimundo Heluani:** PBW bases of Ising modules  
12:50 – 13:25 **Hao Li:** Quasi-lisse vertex (super)algebras

**Chair: Gordan Radobolja**

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## Free discussion

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### Friday, June 30

9:00 – 9:50 **Ivan Mirković:** Extra structure on lattice vertex algebras  
10:00 – 10:50 **Tomislav Šikić:** Relations among relations for standard  $C_n^{(1)}$ -modules of level 2,3,...?

**Chair: Mirko Primc**

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10:50 – 11:10 **Coffee break**  
11:10 – 11:55 **Simon Wood:** Duality structures on tensor categories coming from vertex operator algebras  
12:00 – 12:35 **Shoma Sugimoto:** Characters of logVOAs and quantum invariants

**Chair: Ozren Perše**

15:30-16:20 **Mina Aganagić:** Homological link invariants from Floer theory  
16:30-17:20 **Tomoyuki Arakawa:** Hilbert Schemes of the points in the plane and quasi-lisse vertex algebras with N=4 symmetry

**Chair: Dražen Adamović**

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### Saturday, July 1

9:00 – 9:35 **Xuanzhong Dai:** Chiral de Rham complex and automorphic forms  
9:40 – 10:15 **Yuto Moriwaki:** On the operad structure of moduli spaces and the consistency of non-chiral conformal field theory  
10:15 – 10:35 **Coffea Break**  
10:35 – 11:10 **Justine Fasquel:** Rationality and orthosymplectic Feigin-Semikhatov duality  
11:15 – 11:50 **Ivana Vukorepa:** New semi-simple categories on affine vertex algebras at non-admissible levels  
12:00 **Final addresses**

**Chair: Tomislav Šikić**

