Tomoyuki ARAKAWA (RIMS)
Representation theory of W-algebras
1. What are W-algebras?
2. Finite and Affine W-algebras
3. Representation theory of W-algebras via the quantum Drinfeld-Sokolov reduction functor
4. Kac-Wakimoto admissible representations and rationality of W-algebras

Alexander I. BUFETOV (Steklov / IITP / HSE)
Measure-preserving actions of infinite-dimensional groups
1. Introduction to Harmonic Analysis on Infinite-Dimensional Groups
2. Ergodic Measures: the Pickrell Classification, the Olshanski-Vershik Approach
3. Finiteness of Ergodic Unitarily-Invariant Measures on Spaces of Infinite Matrices
4. Determinantal Point Processes

Ivan CHEREDNIK (North Carolina)
DAHA from scratch
1. DAHA and its polynomial representation
2. Nonsymmetric Macdonald polynomials
3. The Demazure limit and the p-adic limit
4. Verlinde algebras; singular k, roots of unity

Boris FEIGIN (HSE / Laudau Institute / RIMS)
Rodger-Ramanujan identity, fermionic formulas, affine flag manifolds, Toda integrable system and around...
1. Two ways to prove Rodger-Ramanujan
2. Affine algebras, flag manifolds characters formulas
3. Fermionic formulas and generalizations of Rodgers-Ramanujan
4. Cohomology of sheaves on affine flags, Hodge cohomology of affine flags (in the very end)

Hiroshi IRITANI (Kyoto)
Hodge Theoretic Mirror Symmetry
1. Quantum cohomology and differential equation
2. Oscillatory and period integrals
3. Isomorphism of non-commutative Hodge structures
4. Givental's Quantization

Leonid RYBNIKOV (HSE)
Gelfand-Tsetlin bases and beyond
1. Schur-Weyl duality and representations of $\text{GL}_n$
2. Gelfand-Tsetlin theory
3. Yangians
4. Gelfand-Tsetlin and Geometry

Ken-ichi YOSHIKAWA (Kyoto)
An introduction to analytic torsion and Quillen metrics
1. Determinant of Laplacian
2. Determinant of cohomologies
3. Quillen metric and its basic properties
4. Examples related to automorphic forms

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* Lectures on August 9 - 10 will take place at Room 305.