Grigori Olshanski. Publications[1]

(*unitary representations of p-adic and real reductive groups; Lie group and Lie algebra theory; unitary representations of infinite–dimensional groups; algebraic combinatorics; random point processes; infinite-dimensional Markov processes*)

1. Topology of the space of unitary representations of a nilpotent Lie group. Funct. Anal. Appl. 3, no. 4 (1969), 340-342.

2. On the Frobenius reciprocity theorem. Funct. Anal. Appl. 3, no. 4 (1969), 295-302.

3. On intertwining operators for induced representations of reductive p-adic groups. Russian Math. Surveys 27, no. 6 (1972), 243-244.

4. On unitary representations of the groups $GL(2)$ and $GU(2)$ over a totally disconnected locally compact quaternion field. Funct. Anal. Appl. 7, no. 1 (1973), 73-75.

5. Intertwining operators and complementary series in the class of representations of the general linear group over a locally compact division algebra induced from parabolic subgroups. Math. USSR–Sbornik 22 (1974), 217–255.

6. On representations of the group of automorphisms of a tree. Uspehi Mat. Nauk. 30, no. 3 (1975), 169-170 (Russian).

7. Classification of irreducible representations of groups of automorphisms of Bruhat–Tits trees. Funct. Anal. Appl. 11, no. 1 (1977), 26-34.

8. Unitary representations of the infinite–dimensional classical groups $U(p,\infty)$, $SO(p,\infty)$, $Sp(p,\infty)$ and the corresponding motion groups. Soviet Math. Doklady 19 (1978), 220-224.

9. Unitary representations of the infinite–dimensional classical groups $U(p,\infty)$, $SO(p,\infty)$, $Sp(p,\infty)$ and the corresponding motion groups. Funct. Anal. Appl. 12 (1979), 185-195.

10. Construction of unitary representations of infinite-dimensional classical groups. Soviet Math. Doklady 21 (1980), 66-70.

11. Description of unitary representations with highest weight for the groups $U(p,q)^{\sim}$. Funct. Anal. Appl. 14 (1981), 190-200.

12. Invariant cones in Lie algebras, Lie semigroups, and the holomorphic discrete series. Funct. Anal. Appl. 15 (1982), 275-285.

13. Invariant orderings in simple Lie groups: the solution to E.B.Vinberg's problem. Funct. Anal. Appl. 16 (1983), 80-81.

14. New "large" groups of type one. J. Soviet Math. 18 (1982), 22-39.

15. Convex cones in symmetric Lie algebras, Lie semigroups, and invariant causal (order) structures on pseudo-Riemannian symmetric spaces. Soviet Math. Dokl. 26 (1982), 97-101.

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16. Complex Lie semigroups, Hardy spaces, and the Gelfand- Gindikin program. In: Topics in group theory and homological algebra. Yaroslavl University Press, 1982, 85-98 (Russian). English translation: Differential Geometry and its Applications, 1 (1991), 297-308.

17. Spherical functions and characters on the group $U(\infty)^X$. Russian Math. Surveys 37, no. 2 (1982), 233-234.

18. Unitary representations of infinite-dimensional pairs (G, K) and the formalism of R. Howe. Soviet Math. Dokl. 27, no. 2 (1983), 290-294.

19. Infinite-dimensional classical groups of finite $\mathbf{R}$-rank: description of representations and asymptotic theory. Funct. Anal. Appl. 18, no. 1 (1984), 22-34.

20. (with M. C. Prati) Extremal weights of finite-dimensional representations of the Lie superalgebra $gl_{n/m}$. Il Nuovo Cimento 85A, no. 1 (1985), 1-18.

21. Unitary representations of the infinite symmetric group: a semigroup approach. In: Representations of Lie groups and Lie algebras (A.A. Kirillov, ed.). Budapest, Akad. Kiado, 1985, 181-198.

22. Unitary representations of the group $SO(\infty, \infty)$ as limits of unitary representations of the groups $SO(n, \infty)$ as $n \to \infty$. Funct. Anal. Appl. 20, no. 4 (1987), 292-301.

23. Yangians and universal enveloping algebras. Zapiski Nauchn. Semin. LOMI, vol. 164 (1987), 142-150 (Russian); English translation: J. Soviet Math. 47, no. 2 (1989), 2466-2473.

24. Extension of the algebra $U(g)$ for infinite-dimensional classical Lie algebras g, and the Yangians $Y(gl(m))$. Soviet Math. Dokl. 36, no. 3 (1988), 569-573.

25. Determinism of Lévy random fields and unitary representations of infinite-dimensional groups. Russian Math. Surveys 43, no. 2 (1988), 183-184.

26. Method of holomorphic extensions in the representation theory of infinite-dimensional classical groups. Funct. Anal. Appl. 22, no. 4 (1989), 273-285.

27. Irreducible unitary representations of the groups $U(p, q)$ sustaining passage to the limit as $q \to \infty$. Zapiski Nauchn. Semin. LOMI, vol. 172 (1989), 114-120 (Russian); English translation: J. Soviet Math. 59, no. 5 (1992), 1102-1107.

28. Unitary representations of (G, K)-pairs connected with the infinite symmetric group $S(\infty)$. Leningrad Math. J. 1, no. 4 (1990), 983-1014.

29. (with M. L. Nazarov and Yu. A. Neretin) Semi-groupes engendrés par la représentation de Weil du groupe symplectique de dimension infinie. Comptes Rendus Acad. Sci. Paris. Sér. 1, 309, no. 7 (1989), 443-446.

30. Unitary representations of infinite-dimensional pairs (G, K) and the formalism of R. Howe. In: *Representations of Lie groups and related topics*. Advances in Contemp. Math., vol. 7 (A. M. Vershik and D. P. Zhelobenko, editors). Gordon and Breach, N.Y., London etc. 1990, 269-463.

31. Twisted Yangians and infinite-dimensional classical Lie algebras. CWI Report, Amsterdam, 1991; Lecture Notes in Math. 1510 (1992), 103-120.

32. Representations of infinite-dimensional classical groups, limits of enveloping algebras, and Yangians. In: *Topics in Representation Theory* (A. A. Kirillov, ed.). Advances in Soviet Math., vol. 2. Amer. Math. Soc., Providence, R.I., 1991, 1-66.

33. On semigroups related to infinite-dimensional groups. In: *Topics in representation theory* (A. A. Kirillov, ed.). Advances in Soviet Math., vol. 2. Amer. Math. Soc., Providence, R.I., 1991, 67-101.

34. Caractères generalisés du groupe $U(\infty)$ et fonctions interieures. Comptes Rendus Acad. Sci. Paris. Sér. 1, 313 (1991), 9–12.

35. Quantized universal enveloping superalgebra of type Q and a super-extension of the Hecke algebra. Letters in Mathematical Physics 24 (1992), 93-102.

36. (with S. Kerov and A. Vershik) Harmonic analysis on the infinite symmetric group. A deformation of the regular representation. Comptes Rendus Acad. Sci. Paris. Sér. 1, 316 (1993), 773-778.

37. Weil representation and norms of Gaussian operators. Functional Analysis and its Applications 28 (1994), 42–54.

38. (with Serguei Kerov) Polynomial functions on the set of Young diagrams, Comptes Rendus Acad. Sci. Paris, Ser. I, 319 (1994), 121–126.

39. Cauchy–Szegö kernels for Hardy spaces on simple Lie groups, Journal of Lie Theory, 5 (1995), 241–273.

40. (with Alexander Molev and Maxim Nazarov) Yangians and classical Lie algebras. Russian Mathematical Surveys 51, no. 2 (1996), 205-282.

41. (with Anatoli Vershik) Ergodic unitarily invariant measures on the space of infinite Hermitian matrices, in *Contemporary Mathematical Physics. F. A. Berezin's memorial volume*, American Mathematical Society Translations, Series 2, Vol. 175 (Advances in the Mathematical Sciences — 31), R. L. Dobrushin, R. A. Minlos, M. A. Shubin, A. M. Vershik, eds., Amer. Math. Soc., Providence, RI, 1996, pp. 137–175

42. (with Maxim Nazarov) Bethe subalgebras in twisted Yangians, Communications in Mathematical Physics 178 (1996), 483-506.

43. (with Yu. A. Neretin) Boundary values of holomorphic functions, special unitary representations of the groups $O(p,q)$, and their limits as $q \to \infty$. J. Math. Sciences 87 (1997), no. 6, 3983-4035.

44. (with Andrei Okounkov) Shifted Schur functions, Algebra i Analiz 9 (1997), no. 2, 73–146 (Russian); English version: St. Petersburg Mathematical J., 9 (1998), 239–300.

45. Generalized symmetrization in enveloping algebras, Transformation Groups 2 (1997), 197–213.

46. (with Andrei Okounkov) Shifted Jack polynomials, binomial formula, and applications, Mathematical Research Letters 4 (1997), 69–78.

47. (with Andrei Okounkov) Shifted Schur functions II. The binomial formula for characters of classical groups and its applications, in: *Kirillov's Seminar on Representation Theory*, Amer. Math. Soc. Translations, 1998, 245–271.

48. (with Sergei Kerov and Andrei Okounkov) The boundary of Young graph with Jack edge multiplicities, Intern. Mathematics Research Notices, 1998, no. 4, 173–199.

49. (with Andrei Okounkov) Asymptotics of Jack polynomials as the number of variables goes to infinity, Intern. Mathematics Research Notices 1998, no. 13, 641–682.

50. (with A. Borodin) Point processes and the infinite symmetric group, Mathematical Research Letters 5 (1998), 799–816.

51. (with A. Borodin) Distributions on partitions, point processes, and the hypergeometric kernel, Communications in Mathematical Physics 211 (2000), no. 2, 335–358.

52. (with A. Borodin and A. Okounkov) Asymptotics of Plancherel measures for symmetric groups, J. American Mathematical Society 13 (2000), no. 3, 481–515.

53. (with Alexander Molev) Centralizer construction for twisted Yangians, Selecta Mathematica 6 (2000), no. 3, 269–317.

54. (with A. Borodin) Harmonic functions on multiplicative graphs and interpolation polynomials. Electronic J. Combinatorics **7** (2000), paper #R28.

55. (with A. Molev) Degenerate affine Hecke algebras and centralizer construction for the symmetric groups. J. Algebra **237** (2001), 302–341.

56. (with A. Borodin) Z-Measures on partitions, Robinson–Schensted–Knuth correspondence, and $\beta = 2$ ensembles. In: *Random matrix models and their applications* (P. M. Bleher and A. R. Its, eds). MSRI Publications, vol. 40, Cambridge Univ. Press, 2001, 71–94.

57. (with A. Regev) Random Young tableaux and combinatorial identities. Seminaire Lotharingien de Combinatoire, Issue 46 (2001), paper B46e (30 pp).

58. (with A. Borodin) Infinite random matrices and ergodic measures. Communications in Mathematical Physics **223** (2001), no. 1, 87–123.

59. (with V. Ivanov), Kerov's central limit theorem for the Plancherel measure on Young diagrams. In: *Symmetric functions 2001. Surveys of developments and perspectives.* Proc. NATO Advanced Study Institute (S. Fomin, editor), Kluwer, 2002, pp. 93–151.

60. (with A. Regev and A. Vershik) Frobenius–Schur functions. In: *Studies in Memory of Issai Schur* (A. Joseph, A. Melnikov, R. Rentschler, eds), Progress in Mathematics **210**, Birkhäuser, 2003, pp. 251–300.

61. Point processes related to the infinite symmetric group. In: *The orbit method in geometry and physics: in honor of A. A. Kirillov* (Ch. Duval, L. Guieu, V. Ovsienko, eds.), Progress in Mathematics **213**, Birkhäuser, 2003, pp. 349–393.

62. An introduction to harmonic analysis on the infinite symmetric group. In: *Asymptotic Combinatorics with Applications to Mathematical Physics* (A. Vershik, ed.). Springer Lecture Notes in Math. **1815**, 2003, 127–160.

63. The problem of harmonic analysis on the infinite-dimensional unitary group. Journal of Functional Analysis 205 (2003), no. 2, pp. 464–524.

64. Probability measures on dual objects to compact symmetric spaces, and hypergeometric identities. Funkts. Analiz i Prilozh. 37 (2003), no. 4 (Russian); English translation in Functional Analysis and its Applications 37 (2003), 281–301.

65. (with S. Kerov and A. Vershik) Harmonic analysis on the infinite symmetric group. Inventiones Mathematicae **158** (2004), no. 3, 551–642.

66. (with A. Borodin) Harmonic analysis on the infinite–dimensional unitary group and determinantal point processes. Annals of Mathematics vol. 161 (2005), no.3, 1319–1422.

67. (with A. Borodin) Z-measures on partitions and their scaling limits. European Journal of Combinatorics, Vol. 26 (2005), no. 6, 795–834.

68. (with A. Borodin) Random partitions and the Gamma kernel. Advances in Mathematics, **194** (2005), no. 1, 141–202.

69. (with A. Borodin) Representation theory and random point processes, In: A. Laptev (ed.), *European congress of mathematics* (ECM), Stockholm, Sweden, June 27–July 2, 2004. Zürich: European Mathematical Society, 2005, pp. 73–94.

70. (with A. Borodin) Markov processes on partitions, Probability Theory and Related Fields, 135 (2006), no. 1, 84–152.

71. (with A. Okounkov) Limits of BC–type orthogonal polynomials as the number of variables goes to infinity, In: *Jack, Hall–Littlewood and Macdonald polynomials* (V. Kuznetsov and S. Sahi, eds.), Amer. Math. Soc., Contemporary Mathematics Series **417** (2006), 281–318.

72. (with A. Borodin) Stochastic dynamics related to Plancherel measure on partitions, In: *Representation Theory, Dynamical Systems, and Asymptotic Combinatorics* (V. Kaimanovich and A. Lodkin, eds). Amer. Math. Soc. Translations–Series 2: Advances in the Mathematical Sciences, vol. **217**, 2006, 9–21.

73. (with A. Borodin and E. Strahov) Giambelli compatible point processes, Advances in Appl. Math. **37** (2006), 209–248.

74. (with A. Gnedin) Coherent permutations with descent statistic and the boundary problem for the graph of zigzag diagrams, Internat. Math. Research Notices, **2006** (2006), Article ID 51968.

75. (with A. Gnedin) The boundary of the Eulerian number triangle. Moscow Math. J. **6** (2006), no. 3, 461–475.

76. (with A. Borodin) Meixner polynomials and random partitions. Moscow Math. J. **6** (2006), no. 4, 629–655.

77. (with A. Borodin) Asymptotics of Plancherel–type random partitions. Journal of Algebra, **313** (2007), no. 1, 40–60.

78. Difference operators and determinantal point processes, Functional Analysis and its Applications **42** (2008), no. 4, 317–329.

79. (with A. Borodin) Infinite-dimensional diffusions as limits of random walks on partitions. Probability Theory and Related Fields **144** (2009), no. 1, 281–318.

80. Anisotropic Young diagrams and infinite-dimensional diffusion processes with the Jack parameter, International Mathematics Research Notices **2010** (2010), no. 6, 1102–1166.

81. (with A. Gnedin) A q-analogue of de Finetti's theorem, Electronic Journal of Combinatorics **16** (2009), no. 1, paper #R78.

82. Plancherel averages: Remarks on a paper by Stanley, Electronic Journal of Combinatorics **17** (2010), paper #R43.

83. (with A. Gnedin) q-Exchangeability via quasi-invariance, Annals of Probability **38** (2010), Number 6, 2103-2135.

84. The quasi-invariance property for the Gamma kernel determinantal measure. Advances in Mathematics **226** (2011), 2305-2350.

85. Laguerre and Meixner symmetric functions, and infinite-dimensional diffusion processes. Zapiski Nauchnyh Seminarov POMI **378** (2010), 81-110; reproduced in Journal of Mathematical Sciences (New York) **174** (2011), no. 1, 41–57; arXiv:1009.2037.

86. Random permutations and related topics. Chapter 25 in *The Oxford Handbook on Random Matrix Theory*, Gernot Akemann, Jinho Baik, and Philippe Di Francesco, eds. Oxford University Press, 2011.

87. (with A. Borodin) Markov processes on the path space of the Gelfand-Tsetlin graph and on its boundary. Journal of Functional Analysis 263 (2012), 248–303.

88. (with A. Gnedin) The two-sided infinite extension of the Mallows model for random permutations. Advances in Applied Math. 48 (2012), Issue 5, 615–639.

89. Laguerre and Meixner orthogonal bases in the algebra of symmetric functions. International Mathematics Research Notices 2012 (2012), 3615–3679.

90. (with A. Borodin) The boundary of the Gelfand-Tsetlin graph: A new approach. Advances in Mathematics 230 (2012), 1738–1779.

91. (with A. Borodin) The Young bouquet and its boundary. Moscow Mathematical Journal **13** (2013), no. 2, 191–230.

93. (with A. Osinenko) Multivariate Jacobi polynomials and the Selberg integral. Functional Analysis and its Applications 46 (2012), No. 4, pp. 31–50 (Russian), pp. 262–278 (English translation).

94. (with E. Lytvynov) Equilibrium Kawasaki dynamics and determinantal point processes. Journal of Mathematical Sciences (N.Y) 190, Issue 3, 451–458.

95. Projections of orbital measures, Gelfand–Tsetlin polytopes, and splines. Journal of Lie Theory 23 (2013), no 4, 1011-1022.

96. (with A. Borodin) Markov dynamics on the Thoma cone: a model of time-dependent determinantal processes with infinitely many particles. Electronic Journal of Probability 18 (2013), no. 75, 1–43.

97. (with A. Borodin) An interacting particle process related to Young tableaux. Zapiski Nauchnyh Seminarov POMI [Proceedings of the Scientific Seminars of the Steklov Mathematical Institute, St.-Petersburg Branch], vol. 421 (2014), 47–57. Reproduced in Journal of Mathematical Sciences (New York) 200 (2014), 671-676.

98. The Gelfand-Tsetlin graph and Markov processes (invited talk at ICM 2014). In: Proceedings of the International Congress of Mathematicians, Seoul 2014, Vol. IV, pp. 431-453. Seoul, 2014. http://www.icm2014.org/en/vod/proceedings.html; arXiv:1404.3646

99. (with Alexei Borodin and Alexey Bufetov) Limit shapes for growing extreme characters of $U(\infty)$. The Annals of Applied Probability 25 (2015), Number 4, 2339–2381; arXiv:1311.5697.

100. (with Vadim Gorin) Determinantal measures related to big q-Jacobi polynomials. Functional Analysis and its Applications 49 (2015), 214–217 [In Russian version: no. 3, pp. 70–74].

101. Approximation of Markov dynamics on the dual object to the infinite-dimensional unitary group. Functional Analysis and its Applications 49 (2015), 289–300 [in Russian version: no. 4, pp. 61–75].

102. (with Anton Osinenko) Multivariate Jacobi polynomials and the Selberg integral II. Zapiski Nauchnyh Seminarov POMI 436 (2015), 199–218; to be reproduced in Journal of Mathematical Sciences (New York).

103. The representation ring of the unitary groups and Markov processes of algebraic origin. Advances in Mathematics 300 (2016), 544–615.

104. (with Vadim Gorin) A quantization of the harmonic analysis on the infinite-dimensional unitary group. Journal of Functional Analysis 270 (2016), 375–418.

105. Markov dynamics on the dual object to the infinite-dimensional unitary group. In: Probability and Statistical Physics in St. Petersburg. Proceedings of Symposia in Pure Mathematics vol. 91, pp. 373–394. Amer. Math. Soc., 2016.

106. Extended Gelfand–Tsetlin graph, its q-boundary, and q-B-splines. Functional Analysis and its Applications 50 (2016), no. 2, 107–130.

107. Diffusion processes on the Thoma cone. Functional Analysis and its Applications 50 (2016), 237–240.

108. (with Alexei Borodin) The ASEP and determinantal point processes. Communications in Mathematical Physics 353 (2017), 853–903.

109. An analogue of the big q-Jacobi polynomials in the algebra of symmetric functions. Functional Analysis and its Applications 51:3 (2017), 204–220.

110. The topological support of the z-measures on the Thoma simplex. Functional Analysis and its Applications 52:4 (2018), 308–310; arXiv:1809.07125

111. Interpolation Macdonald polynomials and Cauchy-type identities. Journal of Combinatorial Theory, Series A 162 (2019), 65–117; arXiv:1712.08018.

112. (with Cesar Cuenca) Elements of the q-Askey scheme in the algebra of symmetric functions. Moscow Mathematical Journal 20 (2020), no. 4, 645-694.

113. Determinantal point processes and fermion quasifree states. Communications in Mathematical Physics 378 (2020), no. 1, 507–555.

114. Macdonald polynomials and extended Gelfand-Tsetlin graph. Selecta Mathematica New Series 27 (2021), no. 2, paper 41.

115. Macdonald-level extension of beta ensembles and large-N limit transition. Communications in Mathematical Physics 385 (2021), 595–631.

116. (with Cesar Cuenca and Vadim Gorin) The elliptic tail kernel. Intern. Math. Research Notices vol. 2021 (2021), No. 19, pp. 14922–14964.

117 (with Cesar Cuenca) Infinite-dimensional groups over finite fields and Hall-Littlewood symmetric functions. Advances in Mathematics 395 (2022), paper 108087 (58 pp.)

118. (with Alexander I. Bufetov) A hierarchy of Palm measures for determinantal point processes with gamma kernels. Studia Mathematica 267 (2022), no. 2, 121–160.

119. (with Cesar Cuenca) Mackey-type identity for invariant functions on Lie algebras of finite unitary groups and an application. Journal of Lie Theory 33 (2023), No. 1, 149–168; arXiv:2206.07320.

120. The centralizer construction and Yangian-type algebras. Journal of Geometry and Physics 196 (2024), paper 105063, 36 pp.; arXiv:2208.04809.

121. Characters of classical groups, Schur-type functions, and discrete splines. Matematicheskii Sbornik 214:11 (2023), 89-132 (Russian); English version: Sbornik Mathematics, to appear; arXiv:2307.05160.

122. (with Nikita Safonkin) Remarks on Yangian-type algebras and double Poisson brackets. Functional Analysis and its Applications 57:4 (2023), 75-88 (Russian); English version to appear; arXiv:2308.13325.

123. (with Nikita Safonkin) Double Poisson brackets and involutive representation spaces. Preprint arXiv:2310.01086.

Book:

Alexei Borodin and Grigori Olshanski, Representations of the infinite symmetric group. Cambridge University Press, 2017.