

Jang Soo Kim

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Research Area

Enumerative Combinatorics and Algebraic Combinatorics

Positions

- 9/2022 - current: Professor, Sungkyunkwan University
- 9/2015 - 8/2022: Associate Professor, Sungkyunkwan University
- 3/2014 - 8/2015: Assistant Professor, Sungkyunkwan University
- 6/2013 - 2/2014: Research Fellow, KIAS
- 9/2010 - 5/2013: Dunham Jackson Assistant Professor, School of Mathematics, University of Minnesota
- 3/2009 - 7/2010: CNRS postdoctor (mentor: Sylvie Corteel) at LIAFA, University of Paris 7

Education

- 3/2003 - 1/2009: Ph.D. in Mathematical Sciences, KAIST (advisor : Dongsu Kim)
- 3/1999 - 2/2003: B.S. in Mathematics, KAIST

Committees

Annals of Combinatorics

- 2019 Sep - current: Editor

Discrete Mathematics

- 2020 Nov - current: Associate Editor

Combinatorial Theory

- 2020 Nov - current: Handling Editor

FPSAC

- 2019 Sep - current: Executive Committee member

Papers

Preprints

- Characteristic polynomials of the weak order on classical and affine Coxeter groups (with Sun-mi Yun), [arXiv:2204.01310](#)
- Negative moments of orthogonal polynomials (with Jihyeug Jang, Donghyun Kim, Minho Song, U-Keun Song), [arxiv:2201.11344](#)
- Three families of q -Lommel polynomials (with Dennis Stanton), [arXiv:2105.10096](#)
- Refined canonical stable Grothendieck polynomials and their duals (with Byung-Hak Hwang, Jihyeug Jang, Minho Song, and U-Keun Song), [arXiv:2104.04251](#)
- Enumeration of standard barely set-valued tableaux of shifted shapes (with Michael Schlosser and Meesue Yoo), [arXiv:2006.03253](#)
- Weight multiplicities and Young tableaux through affine crystals (with Kyu-Hwan Lee and Se-jin Oh), to appear in *Memoirs of the AMS*, [arXiv:1703.10321](#)
- Symmetric Pascal matrices and related graphs (with Gi-Sang Cheon, Seyed Ahmad Mojallal, Meesue Yoo), to appear in *Linear and Multilinear Algebra*
- Orthogonal polynomials of type R_I (with Dennis Stanton), to appear in *Ramanujan Journal*, [arXiv:2009.14475](#)

2022

- Jacobi–Trudi formulas for flagged refined dual stable Grothendieck polynomials, *Algebraic Combinatorics*, Volume 5 (2022) no. 1, pp. 121–148, [arXiv:2008.12000](#)
- Enumeration of Gelfand–Cetlin type reduced words (with Yunhyung Cho and Eunjeong Lee), *Electronic J. Combin.* 29(1)(2022), #P1.27, [arXiv:2009.06906](#)

2021

- Generalized Schur function determinants using the Bazin identity (with Meesue Yoo), *SIAM J. Discrete Math.* 35 (2021), no. 3, 1650–1672, [arXiv:2012.08741](#)
- Whitney numbers for poset cones (with Galen Dorpalen-Barry and Vic Reiner), *Order* 38 (2021), no. 2, 283–322, [arXiv:1906.00036](#)
- Jacobi–Trudi formula for refined dual stable Grothendieck polynomials, *J. Combin. Theory Ser. A* 180 (2021), 105415, [arXiv:2003.00540](#)
- Volumes of generalized Chan–Robbins–Yuen polytopes (with Sylvie Corteel and Karola Mészáros), *Discrete & Computational Geometry*, 65, 510–530 (2021), [arXiv:1704.02701](#)

2020

- Volumes of flow polytopes related to caracol graphs (with Jihyeug Jang), *Electronic J. Combin.* 27(4)(2020), #P4.21, [arXiv:1911.10703](#)
- Lecture hall tableaux (with Sylvie Corteel), *Adv. Math.* 371 (2020) 107266, [arXiv:1804.02489](#)
- On linearization coefficients of q -Laguerre polynomials (with Byung-Hak Hwang, Jaeseong Oh and Sang-Hoon Yu), *Electronic J. Combin.* 27(2)(2020), #P2.22, [arXiv:2001.01930](#)
- Enumeration of bounded lecture hall tableaux (with Sylvie Corteel), *Séminaire Lotharingien de Combinatoire* B81f (2020), 28 pp, [arXiv:1904.10602](#)
- Product formulas for certain skew tableaux (with Meesue Yoo), *European J. Combin.* 84 (2020), 103038, [arXiv:1806.01525](#)

2019

- Reverse plane partitions of skew staircase shapes and q -Euler numbers (with Byung-Hak Hwang, Meesue Yoo and Sun-mi Yun), *J. Combin. Theory Ser. A* 168 (2019), 120–163, [arXiv:1711.02337](#)
- Hook length property of d -complete posets via q -integrals (with Meesue Yoo), *J. Combin. Theory, Ser. A* 162 (2019), 167–221, [arXiv:1708.09109](#)

2018

- Proof of Chapoton's conjecture on Newton polygons of q -Ehrhart polynomials (with U-Keun Song), *Electronic J. Combin.* 25(2)(2018), #P2.51 [arXiv:1704.05621](#)
- Spectral properties of Pascal graphs (with Gi-Sang Cheon and Seyed Ahmad Mojallal), *Linear and Multilinear Algebra* 66 (2018), 1403–1417
- On the f -vectors of Gelfand-Cetlin polytopes (with Byung Hee An and Yunhyung Cho), *European J. Combin.* 67 (2018), 61–77, [arXiv:1606.05957](#)

2017

- Colored permutations with no monochromatic cycles (with Dongsu Kim and Seunghyun Seo), *J. Korean Math. Soc.* 54 (2017), No. 4, pp. 1149–1161
- Flow polytopes with Catalan volumes (with Sylvie Corteel and Karola Mészáros), *Comptes Rendus Mathématique* 355(3) (2017), 248–259, [arXiv:1612.00102](#)
- On q -integrals over order polytopes (with Dennis Stanton), *Adv. Math.* 308(21) (2017), 1269–1317, [arXiv:1608.03342](#)
- A new q -Selberg integral, Schur functions, and Young books (with Soichi Okada), *Ramanujan Journal* 42 (2017), 43–57, [arXiv:1412.7914](#)
- The Selberg integral and Young books (with Suho Oh), *J. Combin. Theory Ser. A* 145 (2017), 1–24, [arXiv:1409.1317](#)

2016

- Moments of orthogonal polynomials and combinatorics (with Sylvie Corteel and Dennis Stanton), a book chapter, *IMA Volumes in Mathematics and its Applications* Vol. 159, Springer

- Combinatorial proof of a partial theta function identity of Warnaar (with Kathy Ji and Byungchan Kim), *Int. J. Number Theory* 12, 1475–1482 (2016)
- Generalized Dyck tilings (with Matthieu Josuat-Vergès), *European J. Combin.* 51 (2016), 458–474, [arXiv:1410.1270](#)

2015

- The combinatorics of associated Laguerre polynomials (with Dennis Stanton), *SIGMA* 11 (2015), 039, [arXiv:1501.03880](#)
- Bootstrapping and Askey-Wilson polynomials (with Dennis Stanton), *J. Math. Anal. Appl.*, 421 (2015), 501–520, [arXiv:1403.0053](#)

2014

- Moments of Askey-Wilson polynomials (with Dennis Stanton), *J. Combin. Theory Ser. A* 125 (2014), 113–145, [arXiv:1207.3446](#)
- Annular noncrossing permutations and minimal transitive factorizations (with Seunghyun Seo and Heesung Shin), *J. Combin. Theory Ser. A* 124 (2014), 251–262, [arXiv:1201.5703](#)
- Dyck tilings, increasing trees, descents, and inversions (with Karola Mészáros, Greta Panova, David B. Wilson), *J. Combin. Theory Ser. A* 122 (2014), 9–27, [arXiv:1205.6578](#)

2013

- Crossings of signed permutations and q -Eulerian numbers of type B (with Sylvie Corteel and Matthieu Josuat-Vergès), *Journal of Combinatorics* 4 (2013), no. 2, 191–228, [arXiv:1203.0154](#)
- Cyclic sieving phenomenon on annular noncrossing permutations, *Seminaire Lotharingien de Combinatoire* B69b (2013), 20 pp, [arXiv:1210.7353](#)
- Bijections on rooted trees with fixed size of maximal decreasing subtrees, *Annals of Combinatorics* 17 (2013), no. 2, 339–352, [arXiv:1108.6038](#)
- Touchard-Riordan formulas, T-fractions, and Jacobi's triple product identity (with Matthieu Josuat-Vergès), *Ramanujan J.* 30 (2013), no. 3, 341–378, [arXiv:1101.5608](#)

2012

- Enumeration formulas for generalized q -Euler numbers, *Adv. App. Math.* 49 (2012), 326-350, [arXiv:1104.4584](#)
- Proofs of two conjectures of Kenyon and Wilson on Dyck tilings, *J. Combin. Theory Ser. A* 119 (2012), 1692-1710, [arXiv:1108.5558](#)

2011

- Combinatorial rigidity of 3-dimensional simplicial polytopes (with Suyoung Choi), *Int. Math. Res. Notices* 2011 (2011), 1935-1951, [arXiv:1002.0828](#)
- Bijections on two variations of noncrossing partitions, *Discrete Math.*, 311 (2011), 1057-1063, [arXiv:0812.4091](#)
- Front representation of set partitions, *SIAM J. Discrete Math.* 25 (2011), 447-461, [arXiv:0907.1485](#)
- Combinatorics on permutation tableaux of type A and type B (with Sylvie Corteel), *European J. Combin.* 32 (2011), 563-579, [arXiv:1006.3812](#)
- New interpretations for noncrossing partitions of classical types, *J. Combin. Theory Ser. A* 118 (2011), 1168-1189, [arXiv:0910.2036](#)
- q -analog of tableau containment, *J. Combin. Theory Ser. A* 118 (2011), 1021-1038, [arXiv:0812.1256](#)
- Chain enumeration of k -divisible noncrossing partitions of classical types, *J. Combin. Theory Ser. A* 118 (2011), 879-898, [arXiv:0908.2641](#)

2010

- A note on 2-distant noncrossing partitions and weighted Motzkin paths (with Ira M. Gessel), *Discrete Math.* 310 (2010), 3421-3425, [arXiv:1003.5301](#)
- A combinatorial approach to the power of 2 in the number of involutions (with Dongsu Kim), *J. Combin. Theory Ser. A* 117 (2010), 1082-1094, [arXiv:0902.4311](#)
- A note on the total number of cycles of even and odd permutations, *Discrete Math.* 310 (2010), 1398-1400, [arXiv:0909.0683](#)
- A combinatorial proof of a formula for Betti numbers of a stacked polytope (with Suyoung Choi), *Electron. J. Combin.* 17 (2010), #R9, [arXiv:0902.2444](#)

- Skew domino Schensted algorithm and sign-imbalance, *European J. Combin.* 31 (2010), 210-229, [arXiv:0711.1035](#)

2009

- k -distant crossings and nestings of matchings and partitions (with Dan Drake), *DMTCS proc.*, AK (FPSAC 2009) 349-360, [arXiv:0812.2725](#)

2007

- The initial involution patterns of permutations (with Dongsu Kim), *Electron. J. Combin.* 14 (2007), #R2

Unpublished manuscript

- Ratios of Hahn-Exton q -Bessel functions and q -Lommel polynomials (with Dennis Stanton), [arXiv:2006.08120](#)