CURRICULUM VITAE

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- **Education:**
  - 1987-1992 : Seoul National University, B.S. in Mathematics
  - 1992-1994 : Seoul National University, M.S. in Mathematics
  - 1994-1999 : Seoul National University, Ph.D. in Mathematics
    Title of thesis : On universal forms
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- **Experiences:**
  - 02.1999-06.2001 : Research Fellow at Korea Institute for Advanced Study(KIAS)
  - 06.2001-06.2002 : Visiting Research Scholar at the Ohio-State University
  - 06.2002-10.2002 : Visiting Research Scholar at KIAS
  - 11.2002-02.2003 : Research Fellow at Korea Institute for Advanced Study(KIAS)
  - 03.2003-02.2009 : Assistant and Associate Professor at Sejong University
  - 03.2009-02.2012 : Associate Professor at Seoul National University
  - 03.2012-present : Professor at Seoul National University
  - 06.2014-06.2016 : Associate Dean for Research Affairs,
    College of Natural Sciences, SNU
  - 06.2016-06.2017 : Visiting Professor, Department of Mathematics,
    University of Connecticut
  - 12.2017-11.2019 : Chair, Department of Mathematical Sciences, SNU
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- **Research Interests:**
  - Representations of Integral Quadratic Forms
  - Sphere Packings and Algebraic Coding Theory

- Combinatorial Design Theory

• **Awards:**

- 2008.4 : KMS Excellent Research Paper Award (KMS)
- 2008.6 : Scientists of the Month (Korea Science and Engineering Foundation)
- 2023.4 : KMS Excellent Domestic Research Paper Award (KMS)

• **Publications:**

(1) (with M.-H. Kim) A Lower bound for the number of squares whose sum represents integral quadratic forms, *J. Kor. Math. Soc.* 33(1996), 651-655.

(2) (with M.-H. Kim) Representation of positive definite senary integral quadratic forms by a sum of squares, *J. Number Theory* 63(1997), 89-100.

(3) (with Ssang-Soo Lee and Seung-Woo Seo) On the construction of multiwavelength optical orthogonal codes, *Korea Communication Soc.* 24(1999), 869-877

(4) (with B.M. Kim and M.-H. Kim) 2-universal positive definite integral quinary quadratic forms, *Contemp. Math.* 249(1999), 51-62.

(5) Universal $\mathbb{Z}$-lattices of minimal rank, *Proc. Amer. Math. Soc.* No.2 128(2000), 683-689.

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(8) (with M.-H. Kim) A local-global principle for representations of binary forms by certain quinary forms, *J. Kor. Math. Soc.* 39(2002), 525-542.

(9) (with M.-H. Kim) Bounds for quadratic Waring's problem, *Acta. Arith.* 104(2002), 155-164.

(10) (with W. K. Chan) Finiteness theorems for positive definite n-regular quadratic forms, *Trans. Amer. Math. Soc.* 355(2003), 2385-2396.

(11) Representations of quadratic forms by almost universal forms, *Math. Z.* 244(2003), 399-413.

(12) (with W. K. Chan) Positive ternary quadratic forms with finitely many exceptions, *Proc. Amer. Math. Soc.* 132 (2004), 1567–1573.

(13) (with W. K. Chan and A. Earnest) Regularity properties of positive definite integral quadratic forms, *Contemp. Math.* 344(2004), 59–71.

(14) (with M.-H. Kim) Representations of integral quadratic forms by sums of squares, *Math. Z.* 250(2005), 427-442.

(15) (with B. M. Kim and M.-H. Kim) A finiteness theorem for representability of quadratic forms by forms, *J. Reine Angew. Math.* 581(2005), 23–30.

(16) (with Jangheon Oh and Hoseog Yu) New infinite families of 3-designs from algebraic curves over $\mathbb{F}_q$, *European J. Combin.* 28(2007), no. 4, 1262–1269.

(17) Weighted sum of the extensions of the representations of quadratic forms, *Manuscripta Math.* 124(2007), no. 2, 261–267.

(18) (with Hoseog Yu) New infinite families of 3-designs from algebraic curves of higher genus over finite fields, *Electron. J. Combin.* 14(2007).

(19) Positive definite n-regular quadratic forms, *Invent. Math.* 170(2007), no. 2, 421–453.

(20) Primitive even 2-regular positive quaternary quadratic forms, *J. Kor. Math. Soc.* 45(2008), 621-630.

(21) (with J. Bochnak) Almost regular quaternary quadratic forms, *Ann. Inst. Fourier* (Grenoble) 58(2008), 1499-1549.

(22) (with W. K. Chan, B. M. Kim, and M.-H. Kim) Extensions of representations of integral quadratic forms, *Ramanujan. J.* 17(2008), 145-153.

(23) (with J. Bochnak) Almost universal quadratic forms: an effective solution of a problem of Ramanujan, *Duke Math. J.* 147(2009), 131-156.

(24) (with Z.-W. Sun) Mixed sums of squares and triangular numbers (III), *J. Number Theory* 129(2009), 964-969.

(25) (with W. K. Chan) Almost universal ternary sums of triangular numbers, *Proc. Amer. Math. Soc.* 137(2009), 3353-3562.

(26) Regular positive ternary quadratic forms, *Acta Arith.* 147(2011), 233-243.

(27) Ternary universal sums of generalized pentagonal numbers, *J. Korean Math. Soc.* 48(2011), 837-847.

(28) Representations of arithmetic progressions by positive definite quadratic forms, *Int. J. Number Theory* 7(2011), 1603-1614.

(29) (with Y.-S. Ji and M.-H. Kim) Positive definite quadratic forms representing integers of the form $an^2 + b$, *Ramanujan J.* 27(2012), 329-342

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(31) (with Dae-June Kim) Generalized Cullen numbers with the Lehmer property, *Bull. Korean Math. Soc.* 50(2013), 1981-1988.

(32) (with W. K. Chan) Class numbers of ternary quadratic forms, *J. Number Theory* 135(2014), 221-261.

(33) (with Y.-S. Ji and M.-H. Kim) Binary quadratic forms represented by a sum of nonzero squares, *J. Number Theory* 148(2015), 257-271.

(34) (with Jangwon Ju, Inhwan Lee), A generalization of Watson transformation and representations of ternary quadratic forms, *J. Number Theory* 167(2016), 202-231.

(35) (with Inhwan Lee), Linear isomorphisms of non-degenerate integral ternary cubic forms, *Bull. Korean Math. Soc.* 53(2016), 1697-1705.

(36) (with Kyoungmin Kim), The number of representations of squares by integral ternary quadratic forms (II), *J. Number Theory* 173(2017), 210-229.

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(38) (with M.-H. Kim) Positive binary forms representing the same integers in an arithmetic progression, *Acta Arith.* 181(2017), 111-126.

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(40) (with Kyoungmin Kim and Jangwon Ju) Spinor representations of positive definite ternary quadratic forms, *Int. J. Number Theory* 14(2018), 581-594.

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(43) (with Jangwon Ju) A generalization of Gauss' triangular theorem, *Bull. Korean Math. Soc.* 55(2018), 1149-1159.

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(45) (with Mingyu Kim) The number of representations by a ternary sum of triangular numbers, *J. Korean Math. Soc.* 56(2019), 67-80.

(46) (with Jangwon Ju and Bangnam Seo) Ternary universal sums of generalized polygonal numbers, *Int. J. Number Theory* 15(2019), 655-675.

(47) (with Nayandeep Deka Baruah, Mandeep Kaur, and Mingyu Kim) Proofs of some conjectures by Z. -H. Sun on relations between sums of squares and sums of triangular numbers, *Indian J. Pure Appl. Math.* 51(2020), 11–38.

(48) (with Inhwan Lee and Hoseog Yu) A finiteness theorem of almost n-regular quadratic forms, *J. Ramanujan Math. Soc.* 35(2020), 81–94.

(49) (with Jangwon Ju) Universal mixed sums of generalized 4- and 8-gonal numbers, *Int. J. Number Theory* 16(2020), 603–627.

(50) (with Kyoungmin Kim), Quadratic forms with a strong regularity property on the representations of squares, *J. Number Theory* 213(2020), 254–270.

(51) (with M.-H. Kim and Dayoon Park) Binary quadratic forms represented by a sum of squares in an essentially unique way, *Ramanujan J.* 52(2020), 445–458.

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(53) (with Jangwon Ju, Daejun Kim, Kyoungmin Ki,m and Mingyu Kim) Prime-universal diagonal quadratic forms, *Bull. Aust. Math. Soc.* 103(2021), 390-404.

(54) (with Yunsung Ji, Myungjae Kim) Even 2-universal quinary quadratic forms, *J. Korean Math. Soc.* 58(2021), 849-871.

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(62) (with Jangwon Ju, Daejun Kim, Kyoungmin Kim, and Mingyu Kim) Primitively universal quaternary quadratic forms, *J. Number Theory* 242(2023), 181-207.

(63) (with Mingyu Kim) Quadratic forms representing large integers only, *J. Number Theory* 249(2023), 422-440.

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(69) (with Jangwon Ju, Daejun Kim, Kyoungmin Kim, and Mingyu Kim) Composition laws of binary quadratic forms and isolations of quadratic forms, to appear in Journal of Algebra.

(70) (with Jongheun Yoon) Minimal rank of primitively n-universal integral quadratic forms over local rings, submitted.