Changho Han *Curriculum Vitae*

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Personal

200 D.W. Brooks Drive, Room 606
Athens, GA 30602, USA
Canadian Citizen, born in Seoul, South Korea, on January 3, 1992.
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Employment

· **University of Georgia** Limited Term Assistant Professor, 2019 – present

Education

· **Harvard University**, Ph.D., 2014 – 2019, Advisor: Joseph Harris.
Stable log surfaces, trigonal covers, and canonical curves of genus 4.
Committee: Joseph Harris, Maksym Fedorchuk, Dori Bejleri.

· **University of Toronto**, H.B.Sc., 2010 – 2014.

Publications

1. (with Anand Deopurkar) *Stable log quadrics (temporary title)*, in preparation
2. (with Ethan Cotterill and Ignacio Darago) *Arithmetic inflection formulae for linear series on hyperelliptic curves*, arXiv:2010.01714
3. (with Jun-Yong Park) *Arithmetic of the moduli of hyperelliptic curves and principally polarized Abelian surfaces over global fields*, arXiv:2002.00563 (Submitted)
4. (with Anand Deopurkar) *Stable log surfaces, admissible covers, and canonical curves of genus 4*, arXiv:1807.08413 (To appear at Trans. Am. Math. Soc.)
5. (with Jun-Yong Park) *Arithmetic of the moduli of semistable elliptic surfaces*, Math. Ann. **375** (2019), pp. 1745–1760.

Awards

· NSERC Postgraduate Scholarships-Doctoral Program, May 2016 - April 2019
· The Norman Stuart Robertson Scholarship in Mathematics, 2013
· NSERC Undergraduate Student Research Awards, May 2012 - August 2012
· The Coxeter Scholarship in Mathematics, 2012
· Queen Elizabeth II Aiming for Top Scholarship, 2010 – 2014

Research

Algebraic geometry: KSBA (also called stable pair) compactifications of moduli of surfaces, Hassett-Keel program on moduli of curves, birational geometry and Minimal Model Program, deformations and degenerations of curves and surfaces, moduli of K3 surfaces and period domains, Baily-Borel and toroidal compactifications, $\mathbb{A}^1$-enumerative geometry, Moduli of elliptic surfaces, and Grothendieck ring of varieties/stacks.

Recent Talks

In Conferences

Fall 2020

· **Sep** *Madison Moduli Weekend*, Online via Zoom.
Compact moduli of lattice polarized K3 surfaces with $\mathbb{Z}/3\mathbb{Z}$ group actions

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Spring 2020

· **Feb** *Hodge Theory, Arithmetic and Moduli II*, Texas A&M University, College Station, TX.
Genus four curves, K3 surfaces, and del Pezzo surfaces.

Spring 2017

· **May** *AMS graduate student conference in algebra and number theory*, Brown University, Providence, RI.
Compactifying moduli of genus four curves using moduli of log surfaces.

In Seminars

Spring 2020

· **Feb** *Number Theory Seminar*, University of Georgia, Athens, GA.
Counting hyperelliptic curves via hyperelliptic fibrations.

· **Feb** *Geometry Seminar*, Texas A&M University, College Station, TX.
Counting hyperelliptic curves over global fields of bounded height via hyperelliptic fibrations.

Fall 2019

· **Jan** *CGP Seminar*, IBS–CGP, Pohang, South Korea.
Birational geometry of moduli spaces of curves and K3 surfaces.

Fall 2019

· **Oct** *Algebraic Geometry Seminar*, UGA, Athens, GA.
Moduli of 'almost K3' stable log surfaces, curves of genus 4, and degree 6 K3 surfaces with nonsymplectic $\mathbb{Z}/3\mathbb{Z}$ group actions.

Summer 2019

· **July** *Algebraic Geometry Seminar*, KAIST, Daejeon, South Korea.
An arithmetic (or real) count of inflection points on hyperelliptic curves.

· **July** *Algebraic Geometry Seminar*, KAIST, Daejeon, South Korea.
Moduli of 'almost K3' stable log surfaces and curves of genus 4

Spring 2019

· **May** *Valley Geometry Seminar*, UMass Amherst, Amherst, MA.
Moduli of 'almost K3 stable log surfaces'

· **Mar** *Harvard/MIT Algebraic Geometry Seminar*, Harvard University, Cambridge, MA.
'Almost K3' stable log surfaces and curves of genus 4.

· **Feb** *BC NT & AG Seminar*, Boston College, Chestnut Hill, MA.
'Almost K3' stable log surfaces and curves of genus 4.

· **Jan** *Pick My Brain Seminar*, Northeastern University, Boston, MA.
Modular compactifications of moduli spaces in algebraic geometry.

Spring 2018

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· **Feb** *Algebraic Geometry Seminar*, Brown University, Providence, RI.
A birational model of moduli of genus 4 curves using stable log surfaces.

Spring 2017

· **Jan** *Algebraic Geometry Seminar*, University of Georgia, Athens, GA.
KSBA compactifications of smooth quadrics and trigonal genus four curves.

Conferences

— **September 2020**, *Madison Moduli Weekend*, Online via Zoom
— **June – July 2020**, *Algebraic and Tropical Online Meetings*, Online via Zoom
— **April 2020**, *Western Algebraic Geometry ONline*, Online via Zoom
— **March 2020**, *Arithmetic Geometry is ONline In Zoom, Everyone*, Online via Zoom
— **February 2020**, *Hodge Theory, Arithmetic and Moduli II*, Texas A&M University, College Station, TX
— **September 2019**, *Algebraic Geometry Northeastern Series*, Boston College, Boston, MA
— **May 2019**, *Recent Progress in Moduli Theory*, MSRI, Berkeley, CA
— **March 2019**, *Arizona Winter School 2019: Topology and Arithmetic*, University of Arizona, Tucson, AZ
— **December 2018**, *FRG Workshop on Moduli Spaces of sheaves and Bridgeland Stability*, UIC, Chicago, IL
— **November 2018**, *D-Modules and Hodge Theory*, UIC, Chicago, IL
— **October 2018**, *Moduli Spaces: Birational Geometry and Wall Crossings*, BIRS, Banff, AB, Canada
— **October 2018**, *Western Algebraic Geometry Symposium*, University of Oregon, Eugene, OR
— **September 2018**, *Algebraic Geometry Northeastern Series*, Brown University, Providence, RI
— **July 2018**, *Moduli Spaces in Algebraic Geometry and Applications*, satellite conference of ICM, Campinas, Brazil
— **June – July 2018**, *Summer Graduate School on Derived Categories*, MSRI, Berkeley, CA
— **May 2018**, *Birational Geometry and Arithmetic*, ICERM, Providence, RI
— **January 2018**, *Korean-Italian Meeting on Algebraic Geometry*, KIAS, Seoul, South Korea
— **October 2017**, *Algebraic Geometry Northeastern Series*, Northeastern University, Boston, MA
— **August 2017**, *Conference on Birational Geometry*, Simons Foundation, New York, NY
— **June 2017**, *Géométrie Algébrique en Liberté XXV*, University of Bath, Bath, UK
— **June 2017**, *Linear Systems on Irregular Varieties*, Como, Italy

— **May 2017**, *Geometry of Moduli Spaces*, UCSD, La Jolla, CA

— **May 2017**, *Mini-workshop in Birational Geometry and Hodge Theory*, Northwestern University, Evanston, IL

— **December 2016**, *Workshop on Combinatorial Moduli Spaces and Intersection Theory*, Fields Institute, Toronto, ON, Canada

— **August 2016**, *Introductory Workshop on Combinatorial Algebraic Geometry*, Fields Institute, Toronto, ON, Canada

— **July 2016**, *Higher Dimensional Algebraic Geometry*, University of Utah, Salt Lake City, UT

— **July 2015**, *AMS Summer Institute on Algebraic Geometry*, University of Utah, Salt Lake City, UT

— **April 2015**, *New Techniques in Birational Geometry*, Stony Brook University, Stony Brook, NY

Service

· Advised participants as a panelist in Lunch in the time of Covid: Academic visas and Immigration, via Zoom, July 2020:
  - Mainly discussed the process of applying/maintaining F-1 student/OPT/STEM OPT status, and how that has been changed as political parties in power has changed.

· Gave an expository talk at Classical Reading in Arithmetic/Algebraic Geometry (CRAAG) seminar in UGA, Spring 2020:
  - Irreducibility of M_g (based on papers of Deligne-Mumford and Fulton)

· Gave talks for a student seminar on modular curves at UGA, Fall 2019:
  - Introduction to algebraic stacks.
  - Morphisms of algebraic stacks, $\mathcal{M}_{1,1}$, and moduli space of level structures.

· Gave numerous talks for two student algebraic geometry seminars (BAGS and AGLS) at Harvard, Spring 2015 – Fall 2018

· Organized two student algebraic geometry seminars (BAGS and AGLS) at Harvard, Spring 2015 – Fall 2017

· Co-organized undergraduate math seminars at University of Toronto, Fall 2012 – Spring 2013

Teaching

University of Georgia

· *Instructor for Math 2250 (Calculus I)*, Spring 2020.
{Small class initiative, teaching at most 19 students per section. Taught 1 section.}

· *Instructor for Math 1113 (Precalculus)*, Fall 2019.
{Small class initiative, teaching at most 19 students per section. Taught 2 sections.}

Harvard University

· *Coaching Fellow for Math 1b (Calculus, Series, and Differential Equations)*, Spring 2019. {Responsible for taking care of students who need extra help to succeed.}

- *Teaching Fellow for Math 1b (Calculus, Series, and Differential Equations)*, Fall 2017. {Responsible for planning and giving lectures to 20 students, holding office hours, and grading exams.}
- *Teaching Fellow for Math 21b (Linear Algebra and Differential Equations)*, Spring 2017
- *Graduate Course Assistant for Math 258Y (degenerations in algebraic geometry)*, Fall 2016. {Responsible for planning and running sessions that complement the lectures, grading homeworks.}
- *Teaching Fellow for Math 1b (Calculus, Series, and Differential Equations)*, Fall 2015

University of Toronto

- *Teaching Assistant for MAT136H1 (Calculus 1(B))*, Spring 2014. {Responsible for running tutorials and grading a midterm.}
- *Teaching Assistant for MAT135H1 (Calculus 1(A))*, Fall 2013
- *Teaching Assistant for MAT136H1 (Calculus 1(B))*, Spring 2013
- *Teaching Assistant for MAT135H1 (Calculus 1(A))*, Fall 2012

References

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