

Michael Kemeny

CONTACT INFORMATION Department of Mathematics
University of Wisconsin–Madison michael.kemeny@gmail.com
Van Vleck Hall, Room 319
480 Lincoln Drive
Madison, WI 53706, USA

CITIZENSHIP Australia

RESEARCH INTERESTS My interests lie in complex algebraic geometry. My main research focus is on the moduli of projective varieties, as well as the study of their equations in projective space.

EDUCATION **Universität Bonn, Germany**
Ph.D in Pure Mathematics, June 2015

- Dissertation: Stable maps and singular curves on K3 surfaces
- Advisor: Daniel Huybrechts

Master in Mathematics, October 2011

- Dissertation: Rational curves on K3 surfaces
- Advisor: Daniel Huybrechts

The University of Sydney, Australia

Honours in Pure Math. (First Class Honours and Univ. Medal), 2008
Bachelor of Science (Advanced Mathematics), 2005-2007

POSITIONS HELD University of Wisconsin–Madison, USA
Assistant Professor (tenure-track), 2019–

Stanford University, USA
Szegő Assistant Professor, 2016–2019

Humboldt-Universität zu Berlin, Germany
Wissenschaftliche Mitarbeiter, 2014–2016

PUBLICATIONS M. Kemeny, *The Geometric Syzygy Conjecture*, preprint.
M. Kemeny, *Universal Secant Bundles and Syzygies of Canonical Curves*. *Inventiones Math.* 223: 995-1026, 2021.
M. Kemeny, *Projecting Syzygies of Curves*. *Algebraic Geometry* 7 (5): 561-580, 2020.
M. Kemeny, *Betti Numbers of Curves and Multiple-Point Loci*. Preprint: arXiv:1804.09221 (*submitted*).
G. Farkas, M. Kemeny, *Linear syzygies of curves with prescribed gonality*. *Advances in Math.* 356: 106810, 2019.

M. Kemeny, *Syzygies of Curves beyond Green's Conjecture*. In Proceedings of the Abel Symposium 2017: 195–216, Springer, Cham, 2018.

G. Farkas, M. Kemeny, *The resolution of paracanonical curves of odd genus*. Geometry and Topology 22 (7): 4235–4257, 2018.

G. Farkas, M. Kemeny. *The Prym–Green Conjecture for torsion line bundles of high order*. Duke Math. J. 166 (6): 1103–1124, 2017.

M. Kemeny. *The extremal Secant Conjecture for curves of arbitrary gonality*. Compositio Math. 153 (2): 347–357, 2017.

G. Farkas, M. Kemeny. *The generic Green–Lazarsfeld secant conjecture*. Invent. Math 203 (1): 265–301, 2016.

M. Kemeny. *The moduli of singular curves on $K3$ surfaces*. J. Math. Pures Appl. 104(5): 882–920, 2015.

D. Huybrechts, M. Kemeny. *Stable maps and Chow groups*. Doc. Math. 18: 507–517, 2013.

M. Kemeny. *The universal Severi variety of rational curves on $K3$ surfaces*. Bull. London Math. Soc. 45(1): 159–174, 2012.

M. Kemeny. *Stable maps and singular curves on $K3$ surfaces*. PhD thesis, Universität Bonn (June 2015). Supervised by Daniel Huybrechts.

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| AWARDS | 2021–2022 | UW Madison Fall Competition award |
| | 2017–2020 | NSF Grant DMS-1701245. Amount Awarded: \$140,742 |
| | 2011–2014 | Ph.D. Scholarship, Bonn International Graduate School |
| | 2009–2010 | Qualification Scholarship, Bonn International Graduate School |
| | 2008 | University Medal, The University of Sydney |

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|----------|--------|---------|--|
| TEACHING | Spring | 2021 | Algebraic Curves (Reading Course) |
| | Spring | 2021 | Algebraic Geometry 2 |
| | Spring | 2020 | Modern Algebra |
| | Fall | 2019 | Hodge Theory and Period Domains |
| | Fall | 2018 | Integral Calculus of Several Variables |
| | Spring | 2018 | Algebraic Geometry |
| | Spring | 2018 | Linear Algebra and Matrix Theory |
| | Autumn | 2017 | Groups and Rings |
| | Autumn | 2017 | Calculus |
| | Spring | 2017 | Syzygies |
| | Autumn | 2016 | Linear Algebra and Multivariable Calculus (2 Sections) |
| | Winter | 2015/16 | Deformation Theory |
| | Winter | 2012/13 | Tutor, Algebraic Geometry II |
| | Winter | 2011/12 | Tutor, Algebra II |
| | Summer | 2011 | Tutor, Algebra I |

SERVICE Co-organizer for the Stanford Algebraic Geometry seminar.

Referee for: Inventiones Math., Journal American Math. Soc., Compositio Math.

IMRN, Bull. LMS, Doc. Math., Math. Nachrichten, Annals of K-Theory, Collectanea Math., Mathematika.

INVITED TALKS

Universal Secant Bundles and Syzygies, Seminar, Seminar of Algebraic Geometry in East Asia, March 2021, (*virtual seminar*)

Minimal rank generators for syzygies of canonical curves, Seminar, Humboldt Universität zu Berlin, November 2020, (*virtual seminar*)

A simple proof of Voisin's Theorem, Seminar, UIC, March 2020.

A simple proof of Voisin's Theorem, Seminar, Stony Brook University, February 2020.

A simple proof of Voisin's Theorem, Seminar, University of Michigan, February 2020.

Projecting Syzygies of Curves, Seminar, LMU München. June 2019.

Projections of syzygies, Seminar, Columbia University. April 2019.

Betti numbers of the canonical ring of a curve, Seminar, MIT. March, 2018.

First steps toward a classification of Betti tables of canonical curves, Seminar, Boston College. February, 2018.

First steps toward a classification of Betti tables of canonical curves Seminar, Stony Brook University. February, 2018.

On the possible Betti numbers of a canonical curve, Seminar, University of California, Davis. February, 2018.

The Equations defining Curves and Moduli Spaces, Colloquium, University of Cambridge. January 2018.

The equations defining Curves and Moduli Spaces, Colloquium, University of North Carolina, Chapel Hill. December 2017.

The equations defining Curves and Moduli Spaces, Colloquium, University of Wisconsin Madison, November 2017.

Some new directions in the study of syzygies of curves, Workshop on Topics in Algebraic Geometry, UNC Chapel Hill. November 2017.

The Prym-Green conjecture for curves of odd genus, WAGS Fall 2017, UCLA. October 2017.

On the possible Betti tables of a canonical curve, Geometry of Moduli, The Abel Symposium. August 2017.

Degenerations of projective K3 surfaces and paracanonical curves, Higgs Bundles, K3 Surfaces and Moduli. Berlin, July 2017.

Schreyer's Conjecture and Hurwitz Spaces, Geometry of Moduli Spaces. San Diego, May 2017.

Effective bounds for Green-Lazarsfeld's Gonality Conjecture, Conference On Moduli and Birational geometry. Jeju, Korea. December 2016.

Betti numbers of canonical curves and Hurwitz spaces, Geometry at the ANU: Conference. Canberra, Australia. August 2016.

Hurwitz spaces and extremal Betti numbers, Advanced School and Workshop on Moduli Spaces, Mirror Symmetry and Enumerative Geometry. Trieste, Italy. August 2016.

The Prym-Green Conjecture, School on Moduli of Curves. Guanajuato, Mexico. Feb-March 2016.

Extremal cases of the Secant conjecture for curves of arbitrary gonality, German-Israeli Workshop in Algebraic and Tropical Geometry. Ramat Gan, Israel. January 2016.

Syzygies of curves and K3 surfaces, Mini-Workshop: Singular Curves on K3 Surfaces and Hyperkähler Manifolds. Oberwolfach, Germany. November 2015.

Torsion bundles on K3 sections and the Prym-Green conjecture, Geometry of algebraic varieties. Berlin, Germany. October 2015.

Syzygies of curves via K3 surfaces, Syzygies in Algebra and Geometry. Busan, Korea. August 2015.

Syzygies of curves, Motivic invariants related to K3 and abelian geometries. Berlin, Germany. February 2015.

The moduli space of singular curve on K3 surfaces, Brill-Noether methods in the study of hyper-Kähler and Calabi-Yau manifolds. Bonn, Germany. March 2014.

Chow groups and stable maps, GAeL XX. Grenoble, France. June 2012.

LANGUAGES

English (native), German (conversant)