

Gabriel Conant

University of Notre Dame

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Education

- August 2015 **Ph.D. in Pure Mathematics**, *University of Illinois*, Chicago, IL.
Thesis: *Model theory and combinatorics of homogeneous metric spaces*
Advisor: David Marker
- May 2010 **MS in Pure Mathematics**, *University of Illinois*, Chicago, IL.
- May 2008 **BA in Mathematics**, *Colgate University*, Hamilton, NY.

Research Interests

Model theory of groups, especially stable or NIP groups, expansions of amenable groups (especially the group of integers), connections to additive combinatorics and combinatorial number theory.

Model theory of homogeneous structures, especially Fraïssé limits and other generic structures such as homogeneous metric spaces and graphs.

Employment

- 2016-present **Lumpkins Postdoctoral Research Associate Professor**, *University of Notre Dame*, Notre Dame, IN.
- 2015-2016 **Visiting Assistant Professor**, *University of Notre Dame*, Notre Dame, IN.
- 2008-2015 **Teaching Assistant**, *University of Illinois*, Chicago, IL.

Academic Service

- 2013-present **Webmaster of forkinganddividing.com**.
As a resource for students and researchers, I created and maintain a dynamic map of the network of definitions and dividing lines in model-theoretic classification theory.
- Spring 2017 **Co-organizer of AMS Special Session in Model Theory at Bloomington, IN.**
- Spring 2016 **Member of Ph.D. thesis defense committee.**
For Somayeh Vojdani (University of Notre Dame, advisor: Anand Pillay)
- 2014-2015 **Co-organizer of the 16th Graduate Student Conference in Logic.**
This is an annual conference intended for graduate students who want to present their thesis research and/or practice giving expository talks.
- 2013-2015 **Member of the University of Illinois at Chicago (UIC) chapter of the Association for Women in Mathematics.**
Our chapter sponsors events such as: panels on success in graduate school, work-life balance, and the history of women in mathematics; workshops on creating an academic website or writing a CV; and social activities for graduate students.
- 2011-2013 **Co-organizer of the UIC Louise Hay Logic Seminar.**
This is a weekly graduate student seminar for giving expository and research talks.

- Fall 2013 **Co-organizer of the UIC Model Theory Seminar.**
This is a weekly seminar usually focusing on one main topic to cover throughout the semester.
- Spring 2013 **Co-organizer of UIC Graduate Student Colloquium.**
This research seminar is intended for graduate students in all fields of mathematics, with the primary purpose of exposing students to research being done by others in their department.
- Fall 2011 **UIC Teaching Assistant Coordinator.**
Duties: observe and evaluate first-year teaching assistants, discuss evaluations and advise teaching methods throughout the semester.
- 2009-2010 **Co-president of the UIC Mathematics Graduate Student Association.**
Duties: Organize activities for faculty and students in the department, including weekly department teas and occasional social events.

Awards

- 2014-2015 **Research Training Group Pre-doctoral Fellow**, *University of Illinois*, Chicago, IL.
I was supported as a graduate student in UIC's RTG program in algebraic geometry and related fields, including number theory, complex dynamics, model theory and logic
- 2008 **Edwin J. Downie '33 Award for Mathematics**, *Colgate University*, Hamilton, NY.
Given annually to a senior majoring in mathematics who has made outstanding contributions to the mathematics department through exemplary leadership, service, and achievement.
- 2006 **Sisson Prize in Mathematics**, *Colgate University*, Hamilton, NY.
Awarded to an outstanding sophomore student in mathematics.

Teaching Experience

- 2015-present **VAP, Lumpkins Postdoctoral RAP**, *University of Notre Dame*, Notre Dame, IN.
MATH 20550 Calculus III: fall 2015 (36 students), fall 2016 (66 students), fall 2017 (64 students);
MATH 10560 Calculus II: fall 2015 (57 students), spring 2016 (65 students)
MATH 10250 Elements of Calculus I: spring 2016 (29 students), fall 2017 (69 students)
MATH 10130 Beginning Logic: fall 2016 (33 students)
MATH 10120 Finite Mathematics: spring 2017 (27 students)
- 2012-2014 **Lecturer (graduate student)**, *University of Illinois*, Chicago, IL.
MATH 300 Writing for Mathematics: fall 2013, spring 2014
MATH 210 Calculus 3: fall 2012
Summer Enrichment Workshop - Math 090 Intermediate Algebra: summer 2013
- 2008-2013 **Teaching assistant**, *University of Illinois*, Chicago, IL.
MATH 181 Calculus 2, MATH 180 Calculus 1, MATH 160 Finite Math for Business, MATH 121 Precalculus, MATH 090 Intermediate Algebra

Publications

- to appear E. Bering, G. Conant, & J. Gaster, **On the complexity of finite subgraphs of the curve graph**, to appear in *Osaka Journal of Mathematics*.
- to appear G. Conant, **There are no intermediate structures between the group of integers and Presburger arithmetic**, to appear in *Journal of Symbolic Logic*.
- to appear G. Conant & A. Pillay, **Stable groups and expansions of $(\mathbb{Z}, +, 0)$** , to appear in *Fundamenta Mathematicae*.
- 2017 G. Conant, **Forking and dividing in Henson graphs**, *Notre Dame J. Formal Logic* **58** (2017), no. 4, 555-566.

- 2017 G. Conant, **An axiomatic approach to free amalgamation**, *J. Symbolic Logic* **82** (2017), no. 2, 648-671.
- 2017 G. Conant, **Neostability in countable homogeneous metric spaces**, *Ann. Pure Appl. Logic* **168** (2017), no. 7, 1442-1471.
- 2017 G. Conant, **Distance structures for generalized metric spaces**, *Ann. Pure Appl. Logic* **168** (2017), no. 3, 622-650.
- 2016 G. Conant, **A remark on strict independence relations**, *Arch. Math. Logic* **55** (2016), no. 3-4, 535-544.
- 2016 G. Conant & C. Terry, **Model theoretic properties of the Urysohn sphere**, *Ann. Pure Appl. Logic* **167** (2016), no. 1, 49-72.

Preprints

- arXiv 2017 *A group version of stable regularity*, (with A. Pillay & C. Terry) arXiv 1710.06309.
- arXiv 2017 *Independence in generic incidence structures*, (with A. Kruckman) arXiv 1709.09626.
- arXiv 2017 *Multiplicative structure in stable expansions of the group of integers*, arXiv 1704.00105.
- arXiv 2017 *Definable sets containing productsets in expansions of groups*, (with U. Andrews & I. Goldbring) arXiv 1701.07791.
- arXiv 2017 *Stability and sparsity in sets of natural numbers*, arXiv 1701.01387.
- arXiv 2015 *Extending partial isometries of generalized metric spaces*, arXiv 1509.04950.

Invited Talks

- May 2018 **Special Session on Model Theory**, *Association for Symbolic Logic (ASL) North American Annual Meeting*, Western Illinois University, Macomb, IL.
- Jan. 2018 **Model Theory and Combinatorics**, *Institut Henri Poincaré*, Paris, France.
- Dec. 2017 **Special Session on Model Theory**, *Canadian Mathematical Society Annual Winter Meeting*, University of Waterloo, Waterloo, Ontario.
- August 2017 **Nonstandard Methods in Combinatorial Number Theory**, *American Institute of Mathematics*, San Jose, CA.
- June 2017 **Model Theory in Wrocław**, *Instytut Matematyczny, Uniwersytet Wrocławski*, Wrocław, Poland.
- July 2016 **Model Theory of Finite and Pseudofinite Structures**, *University of Leeds*, Leeds, UK.
- June 2016 **Thematic Program on Model Theory**, instructor for Undergraduate Summer School, *University of Notre Dame*, Notre Dame, IN.
- April 2016 **Graduate Student Conference in Logic**, plenary speaker, *University of Notre Dame*, Notre Dame, IN.
- April 2016 **Midwest Model Theory Day**, *University of Illinois*, Chicago, IL.
- Nov. 2015 **Homogeneous Structures Workshop**, *Banff International Research Station*, Banff, AB.
- Oct. 2015 **Special Session on Model Theory**, *AMS Central Fall Sectional Meeting*, *Loyola University*, Chicago, IL.
- July 2015 **Neostability Workshop**, *Casa Matemática Oaxaca*, Oaxaca, Mexico.
- June 2015 **BLAST**, *University of North Texas*, Denton, TX.

Contributed Talks

- July 2017 **Panhellenic Logic Symposium**, *European Cultural Center of Delphi*, Delphi, Greece.
- Jan. 2016 **Association for Symbolic Logic (ASL) Winter Meeting**, (*with Joint Mathematics Meetings*), Seattle, WA.
- March 2015 **ASL North American Annual Meeting**, *University of Illinois*, Urbana, IL.
- Jan. 2015 **AMS Session on Mathematical Logic**, *Joint Mathematics Meetings*, San Antonio, TX.