

# Gregory (Greg) Muller

CURRICULUM VITÆ

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## Personal Information

Citizenship: United States  
Birthdate: Sept. 10, 1982

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## EDUCATION AND EMPLOYMENT

- 2017–Now** Assistant Professor (Tenure-track), University of Oklahoma.  
**2013–2017** Assistant Professor (Postdoc), University of Michigan.  
**2010–2013** VIGRE Postdoctoral Researcher, Louisiana State University.  
**2006–2010** Ph.D. from Cornell University under the supervision of Yuri Berest.  
Dissertation: “The Projective Geometry of Differential Operators.”  
**2004–2006** Masters in Mathematics from Cornell University.  
**2000–2004** Bachelor of Arts in Mathematics from Rutgers University (Highest honors).

## SCHOLARLY PAPERS

- PREPRINTS (with E. Gunawan) *Superunitary regions of juggler’s friezes*, arXiv: 2208.14521 (2022).
- (with R. Docampo) *Juggler’s friezes*, arXiv: 2208.09025 (2022).
  - *Algebraically-Informed Deep Networks (AIDN): A Deep Learning Approach to Represent Algebraic Structures*, arXiv: 2012.01141 (2020).
  - *Linear recurrences indexed by  $\mathbb{Z}$* , arXiv: 1906.04311 (2019).
- 2019 (with E. Faber and K. E. Smith) *Non-commutative resolutions of toric algebras*, Advances in Mathematics, Volume 351, (2019), arXiv: 1805.00492
- 2018 (with J. Rajchgot and B. Zykoski) *Lower bound cluster algebras: presentations, Cohen-Macaulayness, and normality*. Algebraic Combinatorics, Volume 1 (2018) no. 1, pp. 95-114, arXiv: 1508.02314
- 2017 (with D. Speyer) *Twists of positroid varieties*, Proc. London Math. Soc. (2017), vol. 115, iss. 5, arXiv: 1606.08383
- 2016 *Skein algebras and cluster algebras of marked surfaces*. Quan. Topol. (2016), no 3, 435-503, arXiv:1204.0020
- *The existence of maximal green sequences is not invariant under quiver mutation*. Electron. J. Combin. 23 (2016) no. 2, Paper 2.47, arXiv: 1503.04675
  - (with D. Speyer) *Cluster algebras of Grassmannians are locally acyclic*. Proc. Amer. Math. Soc. 144 (2016) no. 8, arXiv: 1401.5137
  - (with M. Cheug, M. Gross, G. Musiker, D. Rupel, S. Stella, H. Williams) *The greedy basis equals the theta basis*. Journal of Combinatorial Theory, Series A (2016), arXiv: 1508.01404
- 2015 (with A. Benito, J. Rajchgot, and K.E. Smith) *Singularities of locally acyclic cluster algebras*. Algebra Number Theory 9 (2015), no. 4 913-936, arXiv: 1404.4399
- (with J. Matherne) *Computing upper cluster algebras*. Int. Math. Res. Not. (2015) 2015 (11): 3121-3149, arXiv: 1307.0579
- 2014  $\mathcal{A} = \mathcal{U}$  for locally acyclic cluster algebras. SIGMA **10**(094), 8 (2014), arXiv:1308.1141
- 2013 *Locally acyclic cluster algebras*. Adv. Math. **233** (2013) 207-247, arXiv:1111.4468
- (with P. Samuelson) *Character algebras of decorated  $SL_2(C)$ -local systems*. Algebr. Geom. Topol. **13** (2013) 3680-3692, arXiv:1107.3329
- 2012 *The Weil-Petersson form on an acyclic cluster variety*. Int. Math. Res. Not. **16** (2012) 3680-3692, arXiv:1103.2341
- 2011 *2D locus configurations and the charged trigonometric Calogero-Moser system*. J. Nonlinear Math. Phys., **18** (2011) 475-482, arXiv:1012.5287

- 2010 *The Beilinson equivalence for differential operators*. J. Pure Appl. Algebra, **214** (2010) 2124-2143, arXiv:0908.3662
- *Computing a generating set of arithmetic Kleinian groups*. Ramanujan Math. Soc. Lect. Notes Ser., **10** (2010) 513-517, arXiv:0806.0661

#### AWARDS

- **Junior Faculty Fellowship**, University of Oklahoma, 2018-2019
- **NSA Young Investigator Grant**, National Security Agency, 2016-2017.  
*Grant: Emerging problems in the geometry of cluster algebras.*
- **Outstanding Postdoctoral Fellow Award**, University of Michigan, 2015.  
*University-wide award for excellency in research, teaching, and service.*
- **LINK Travel Grant**, Louisiana Board of Regents, 2012.  
*In support of semester at MSRI.*
- **VIGRE Postdoctoral Fellowship**, Louisiana State University, 2010-2013.  
*Duties included six semester running a Vertically Integrated Research (VIR) seminar.*
- **Eleanor Norton York Award**, Cornell University, 2008.
- **Distinguished Teaching Award**, Cornell University, 2006.
- **VIGRE Graduate Fellowship**, Cornell University, 2004-2007.
- **Wolfson Award for Excellence in Mathematics**, Rutgers University, 2004.
- **Joseph P. Bradley Memorial Prize in Mathematics**, Rutgers University, 2004.
- **Lawrence Corwin Prize in Mathematics**, Rutgers University, 2003.
- **Outstanding Scholar Fellowship**, Rutgers University, 2000-2004.

#### VISITING POSITIONS

**Fall 2012** Research member, Mathematical Sciences Research Institute (MSRI).

#### OTHER ACTIVITIES

- **OU Faculty Senator (2019-2022)** Represented College of Arts and Sciences to the Faculty Senate at Large.
- **OU Mathday Organizer (2018-2022)** Coordinated day-long recreational math event on campus for 400 high school students, 40 chaperones, and 30 volunteers.
- **Selection Committee Member (2016)** “*Outstanding Postdoctoral Fellow Award*” Member of university-wide selection panel for award.
- **Founding Organizer (2015)** “*Project Euler Club*” Developed and ran a weekly club for undergraduate students to work through problems in the Project Euler database. Each problem is designed to require a combination of mathematical insight and efficient computer coding.
- **Conference Organizer (2015)** “*AMS Special Session on Cluster Algebras*” Co-organized a special session, as part of the AMS’s *Mathematical Research Communities* program.
- **Organizer (2014)** “*Postdoc Algebraic Geometry Seminar*” Coordinated a semester-long focus on active areas of research in cluster algebras. Lecture notes are available on my website.
- **Team Coach (2014)** “*Mathematical Contest in Modeling*” Mentored team to participate in annual computer-aided modeling contest.
- **Organizer (2011)** “*Algebra Seminar*” Organized departmental algebra seminar.
- **Founding Organizer (2008-2009)** “*Noncommutative Algebra Seminar*” Established and organized the department’s Noncommutative Algebra Seminar.
- **Founding Organizer (2007)** “*What Is... Seminar*” Established and organized the What Is... Seminar, a biweekly forum for professors to give an introductory talk on their research to an audience of younger graduate students.
- **Organizer (2004-2007)** “*Geometry and Physics Reading Group*” Organized the Geometry and Physics Reading Group, an informal graduate student seminar which explored a different topic each semester. Semester-long topics included “The Geometry and Physics of Knots”, “Topological Quantum Field Theory”, and “General Relativity and the No Hair Theorem”.

- **Organizer (2005-2008)** *“Olivetti Club” (Graduate Colloquium)* Organized the Olivetti club, the general graduate student seminar.
- **Organizer (2005-2008)** *“Prospective Graduate Student Weekend”* Helped in the organization of the math department’s Prospective Weekend designed to attract accepted graduate students.
- **Math Blogger (2007-2010)** *“The Everything Seminar”* Wrote more than 40 articles for popular math blog The Everything Seminar ([cornellmath.wordpress.com](http://cornellmath.wordpress.com)) on a wide array of topics, from high school level to research level.
- **Referee, including the following journals.**

Algebraic Geometry	Annals of Combinatorics
Int. Math. Res. Notices	Journal of Combinatorial Theory A
Proc. of the National Academy of Sciences	SIGMA
Michigan Mathematics Journal	Advances in Mathematics
Journal of the AMS	