

Branden Stone

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CONTACT INFORMATION	Department of Mathematics and Computer Science Adelphi University 1 South Ave Garden City, NY 11530	http://math.adelphi.edu/~bstone mobile: 785-813-1206 e-mail: bstone@adelphi.edu
RESEARCH INTERESTS	Commutative Algebra, Boij-Söderberg Theory, Macaulay2, Maximal Cohen-Macaulay Modules, Homological Algebra, Algebraic Combinatorics, Hilbert Functions, Finite F -Representation Type.	
EDUCATION	Doctor of Philosophy, University of Kansas Dissertation Title: Super-stretched and graded maximal Cohen-Macaulay type Advisor: Professor Craig Huneke	August 2012
	M.S. Mathematics, Missouri State University Thesis: Constructive aspects of the inverse Galois problem Advisor: Professor Cameron Wickham	May 2005
	B.S. Mathematics, College of the Ozarks	May 2001
EMPLOYMENT	Assistant Professor, Adelphi University IMMERSE Faculty, University of Nebraska – Lincoln Visiting Assistant Professor, Bard College Mathematics Postdoc, Bard Prison Initiative (BPI)	Fall 2014 - Present Summer 2014 Fall 2012 - Spring 2014 Fall 2012 - Spring 2014
PUBLICATIONS	<p>Recursive strategy for decomposing Betti tables of complete intersections Joint with C. Gibbons and R. Huben. (<i>Submitted</i>)</p> <p>Generalized Multiplicative Indices of Polycyclic Aromatic Hydrocarbons and Benzenoid Systems. Joint with V.R. Kulli, Shaohui Wang, and Bing Wei. <i>Zeitschrift für Naturforschung A</i>, 72.6 (2017): 573-576.</p> <p>Non-simplicial decompositions of Betti diagrams of complete intersections. Joint with Courtney Gibbons, Jack Jeffries, Sarah Mayes, Claudiu Raicu, and Brian White. <i>Journal of Commutative Algebra</i> 7 (2015), no. 2, 189-206.</p> <p>Non-Gorenstein isolated singularities of graded countable Cohen-Macaulay type. Connections between algebra, combinatorics, and geometry, 299317, <i>Springer Proc. Math. Stat.</i>, 76, Springer, New York, (2014).</p> <p>A sequence defined by M-sequences. Joint with Tom Enkosky. <i>Discrete Math.</i> 333 (2014), 3538.</p> <p>Super-stretched and graded countable Cohen-Macaulay type. <i>Journal of Algebra</i> 398 (2014).</p> <p>Computing free bases for projective modules. Joint with Brett Barwick. <i>The Journal of Software for Algebra and Geometry</i>, Vol 5 (2013).</p> <p>Ideals with Larger Projective Dimension and Regularity. Joint with Jesse Beder, Jason McCullough, Luis Núñez-Betancourt, Alexandra Seceleanu and Bart Snapp. <i>Journal of Symbolic Comp</i> 46 (2011).</p>	
MACAULAY2 CAS PACKAGES	<p>Visualize.m2 (in development): Joint with Brett Barwick, Tom Enkosky, and Jim Vallandingham. This package helps visualize algebraic objects in a modern browser using javascript.</p> <p>Decompositions.m2: Joint with Courtney Gibbons. A supplement to the current Boij-Söderberg Macaulay2 package by computing the coefficients of a Betti table decomposition using the Herzog-Kohl equations.</p> <p>QuillenSuslin.m2 This is joint with Brett Barwick. This package uses Logar-Sturmfels algorithm to calculate the free basis of a projective module over a polynomial ring.</p>	

BigIdeal.m2 This package generates the ideals defined in Ideals with Larger Projective Dimension and Regularity by Beder, McCullough, Núñez-Betancourt, Seceleanu, Snapp and Stone. These ideals have very large projective dimension and regularity relative to the degree and number of generators.

AWARDED GRANTS	NSF Conference Grant DMS-1701922, \$30,000. <i>Title:</i> Free resolutions and computations, Berkeley 2017 <i>PI:</i> Branden Stone, Adelphi University <i>Co-PI:</i> Sonja Mapes, University of Notre Dame <i>Co-PI:</i> David Swinarski, Fordham University <i>Co-PI:</i> Hal Schenck, University of Illinois at Urbana-Champaign	May 2017
HONOURS AND AWARDS	2012-2013 Mathematical Association of America Project NExT Leitzel Fellowship 2011-2012 NSF Graduate STEM Fellow in K-12 Education (GK-12) 2010-2011 NSF Graduate STEM Fellow in K-12 Education (GK-12)	
RECENT INVITED TALKS	MAA Session: <i>Innovative Mathematical Outreach in Alternative Settings</i> Joint Mathematics Meetings, San Diego, CA Special Session: <i>Commutative Algebra</i> Spring Eastern Sectional Meeting of the AMS, Hunter College, New York, NY Special Session: <i>Commutative Algebra: Research for Undergrad and Early Grad Students</i> Joint Mathematics Meetings, Atlanta, GA Special Session: <i>Innovative Strategies to Inspire & Prepare Potential STEM Majors Who are Not Yet Ready for Calculus, II</i> Joint Mathematics Meetings, Atlanta, GA Special Session: <i>Aspects of Resolutions and Syzygies in Commutative Algebra</i> Fall Eastern Sectional Meeting of the AMS, Rutgers University, New Brunswick, NJ Special Session: <i>Homological Methods in Commutative Algebra</i> Fall Western Sectional Meeting of the AMS, Cal State, Fullerton, Fullerton, CA University of Minesota, Duluth Math Seminar Fairfield University Student Math Seminar University at Albany Algebra Seminar United States Coast Guard Academy Math Seminar Special Session: <i>Homological Methods in Algebra</i> Central Spring Sectional Meeting of the AMS, Texas Tech, Lubbock, TX United States Military Academy Seminar USMA, West Point, NY Special Session: <i>Homological and Char p Methods in Commutative Algebra</i> 2014 Joint Mathematics Meeting, Baltimore, MD	January 2018 May 2017 January 2017 January 2017 November 2015 October 2015 October 2015 February 2015 October 2014 October 2014 April 2014 February 2014 January 2014
SERVICES AND OUTREACH	Faculty Advisor for AMS Student Chapter <i>Founded the AMS Student Chapter, Department receives \$500 per year from AMS</i> Elected Member of the General Education Committee at Adelphi Academic advisor for sophomore/junior math majors Referee for various mathematical journals Co-Maintain www.commalg.org Faculty sponsor for MAA William Lowell Putnam Competition Reviewer for AMS Mathematical Reviews and Zentralblatt MATH MAA Liaison for the Adelphi math and computer science department Represented Math and CS department in Faculty Senate Poster and Presentation Judge for Adelphi University's Research Day	Spring 2017 - Current Fall 2016 - Current Spring 2016 - Current Spring 2015 - Current Spring 2015 - Current Fall 2014 - Current Fall 2014 - Current Fall 2014 - Current Spring 2016 Spring 2015, 2016

GATHERINGS ORGANIZED	Macaulay2 Conference/Workshop:	July 2017
	<i>Stillman's Conjecture and other Progress on Free Resolutions: a workshop in honor of the sixtieth birthdays of Dave Bayer and Mike Stillman</i>	
	Adelphi University Math and Computer Science Faculty Seminar Series	Fall 2016 - Current
	Adelphi University Math and Computer Science Seminar Series	Fall 2014 - Current
	Project NExT Panel Session on Advising Required Undergraduate Research Projects	July 2013
	MAA MathFest, Hartford, CT	
	Project NExT Panel Session on Mathematics for Social Justice Joint Mathematics Meeting, San Diego, CA	January 2013
TEACHING EXPERIENCE	<i>Adelphi University:</i>	
	Math 110, Pre-Calculus for Non-Majors	Summer 2015
	Math 113, Survey of Statistics (online)	Spring 2017, Fall 2017
	Math 130, Calculus I A	Fall 2014
	Math 140, Precalculus	Fall 2017
	Math 141, Calculus I	Fall 2014
	Math 142, Calculus II	Spring 2015, Fall 2015
	Math 243, Calculus III	Spring 2016, Fall 2016
	Math 253, Linear Algebra	Spring 2015, Fall 2015
	Math 351, Number Theory	Fall 2016
	Math 362, Mathematical Statistics	Spring 2017
	Math 390, Special Topics: Graph Theory	Spring 2016
	Math 391, Independent Study: Diff Geometry	Spring 2015
	Math 391, Independent Study: Calculus to Cohomology	Fall 2016
	Math 391, Independent Study: Research	Fall 2015 - Current
	CSC 156, Discrete Structures	Spring 2017
	CSC 160, Computer Programming for Non-Majors (Python)	Spring 2017
	CSC 171, Introduction to Java I	Fall 2016, Spring 2017
	MTP 590, Analyzing the Common Core Mathematics Standards	Fall 2016
	<i>Bard College:</i>	
	Math 141, Calculus I	Fall 2012
	Math 142, Calculus II	Fall 2012
	Math 213, Linear Algebra with ODE	Spring 2013
	Math 241, Vector Calculus	Fall 2013
	<i>Eastern Correctional Facility:</i>	
	Math 231, Discrete Mathematics	Fall 2012
	Math 332, Abstract Algebra	Spring 2013
	Math 334, Explorations in Mathematics	Fall 2012
	Math 361, Real Analysis	Fall 2013
	Math IND, Readings: Lebesgue Integration	Spring 2013
	Math IND, Readings: Commutative Algebra	Fall 2013
	<i>Woodbourne Correctional Facility:</i>	
	Math 332, Abstract Algebra	Spring 2013
NSF Graduate STEM Fellow in K-12 Education	June 2010 - May 2012	
I implemented inquiry-based learning in middle school mathematics classrooms in Kansas City and I was a teaching assistant in an inquiry based learning course for undergraduate mathematics education majors.		

Full teaching responsibilities as a graduate student at the University of Kansas for the following:

Math 002, Intermediate Algebra	Fall 2007
Math 109, Math for Elementary School Teachers I	Fall 2008
Math 115, Calculus I	Fall 2005, Spring 2006 and Spring 2007
Math 116, Calculus II	Fall 2006
Math 122, Calculus II	Spring and Fall 2009
Math 290, Elementary Linear Algebra	Summer 2007 and Spring 2008

RESEARCH WITH UNDERGRADUATES	Semi-definite programming with Macaulay2 Vincent Schinina, Adelphi University	Current
	Linear programming with Macaulay2 Kyle Murray, Adelphi University	Current
	Finding complex roots Nicholas DeMarco, Adelphi University (Co-advised with Sarah Wright)	May 2017
	Walks on molecular graphs Marisa Masi, Adelphi University	May 2017
	Matroids on rings with applications to toric ideals Patrick Phelps, Adelphi University	May 2017
	From string theory to elliptic curves over a finite field, \mathbb{F}_p Linh Pham, Bard College	May 2014
	Lets walk and explore Bard College (BPI)	May 2014
	A new nook at Hadwiger's conjecture Bard College (BPI)	May 2014
	Concrete bridges to abstract algebras Bard College (BPI)	May 2014
	Sifting squared prime intervals efficient prime acquisition and counting Bard College (BPI)	May 2014
	Algebraic structures and Boij-Söderberg theory Fanny Wyrick-Flax, Bard College	May 2013
	Applications of graph theory to chaotic systems Bard College (BPI)	January 2013
	Computing various dimensions of chaotic systems Bard College (BPI)	January 2013
TECHNICAL SKILLS	Proficient in <i>Macaulay2</i> , \LaTeX , Java, Git, and JavaScript Experience with R, Python, Sage, C++, html and Linux Operating Systems Familiarity with Mathematica, MatLab, Maple, Unix Operating System, and Ruby	
PROFESSIONAL MEMBERSHIP	American Mathematical Society (AMS) Mathematical Association of America (MAA)	
RECENT CONFERENCES AND WORKSHOPS ATTENDED	Macaulay2 Workshop, Berkeley, CA University of California, Berkeley, CA	July 2017
	Spring Eastern Sectional Meeting Hunter College, City University of New York, New York, NY	May 2017
	A View Towards Algebraic Geometry, in honor of David Eisenbud's birthday Harbor View Hotel, Martha's Vineyard, MA	May 2017
	2017 Joint Mathematics Meeting Atlanta, GA	January 2017

Commutative Algebra and Its Interactions with Algebraic Geometry University of Michigan, Ann Arbor, MI	July 2016
Macaulay2 Workshop, Warwick University of Warwick, UK	May 2016
Macaulay2 Workshop 2016 University of Utah, Salt Lake City, UT	May 2016
2016 Joint Mathematics Meeting Seattle, WA	January 2016
Fall Eastern Sectional Meeting of the AMS Rutgers University, New Brunswick, NJ	November 2015
Fall Western Sectional Meeting of the AMS Cal State, Fullerton, Fullerton, CA	October 2015
<i>Macaulay2</i> Workshop Boise State University, Boise, Idaho	May 2015
AMS Spring Eastern Sectional Meeting Georgetown University, Washington, DC	March 2015

REFERENCES

Dr. Craig Huneke (Academic Advisor)
Marvin Rosenblum Professor of Mathematics
University of Virginia
Charlottesville, VA
phone: 434-924-4946
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Dr. Lee Stemkoski (Teaching Reference)
Associate Professor of Mathematics
Adelphi University
Garden City, NY
phone: 516-877-4495
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Dr. Sarah Wright (Teaching Reference)
Assistant Professor of Mathematics
Fitchburg State University
Fitchburg, MA
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Dr. Irena Swanson (Research Reference)
Professor of Mathematics
Reed College
Portland, Oregon
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Dr. Ethan Bloch (Teaching Reference)
Professor of Mathematics
Bard College
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