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# TOLULOPE OKE

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## EDUCATION

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**Texas A&M University,**  
PhD, Mathematics  
Advisor: Dr. Sarah Witherspoon

2021 (*expected*)

**University of Ibadan, Nigeria**  
MSc. Mathematics  
Advisor: Dr. Michael Enioluwafe

2015

**University of Ibadan, Nigeria**  
BSc. Mathematics (*First Class Honors*)

2011

## RESEARCH INTERESTS

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Homological algebra, Hochschild cohomology of associative algebras and their graded Lie structure, representation theory.

## ARTICLES

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- **Gerstenhaber bracket on Hochschild cohomology of Koszul algebras using homotopy liftings** (in preparation).
- **Homotopy liftings and Hochschild cohomology of some twisted tensor products** (with P.S. Ocal, S. Witherspoon) arxiv:2005.06660 (submitted).
- **Cup product on Hochschild cohomology for a family of quiver algebras** arXiv:2004.00780 (submitted).
- **Gerstenhaber brackets on Hochschild cohomology of general twisted tensor products** (with T. Karadag, D. McPhate, P.S. Ocal, S. Witherspoon) arxiv1900.02181, (submitted).
- **Analysis of month-of-the-year effect in an emerging market via stochastic dominance approach**(with I. Adinya, S.O. Edeki) Academy. of Entre. Journal (AEJ), Vol. 25 (2) 2019.

## INVITED TALKS

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- January 6-9, 2021, **Homotopy liftings and Hochschild cohomology of some twisted tensor products**, Joint Mathematical Meeting, Special Session on Commutative algebra meets representation theory, Washington DC.
- June 27, 2020, **Lie algebra structure on Hochschild cohomology of associative algebras** Early Commutative Algebra Researchers (eCARs) conference, Zoom online meeting.
- \*April 25-26, 2020, **Lie structure on Hochschild cohomology of a family of quiver algebras**, URiCA KUMUNUjr Conference, University of Nebraska-Lincoln. <sup>1</sup>
- \*April 4, 2020, **What are DG algebras and DG coalgebras?** AMS Gathering in Graduate Expository Mathematics (GIG'EM) Conference, Texas A&M University.

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<sup>1</sup>Items marked (\*) were cancelled or postponed      updated 2020/08/07

- November 2, 2019, **Cup products on Hochschild cohomology of a family of quiver algebras**, AMS Fall Sectional Meeting, Special Session on Homological Algebra, University of Florida, Gainesville.

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## OTHER TALKS

- February 19, 2020, **How contracting homotopy helps determine the Lie structure on Hochschild cohomology**, Graduate Student Organization Seminar Texas A&M University.
- October 19, 2019, **Derivation operators for a family of quiver algebras**, Graduate Algebra Symposium, held at Texas A&M University.
- October 18, 2019, **Cup products on Hochschild cohomology for a family of quiver algebras**, Algebra and Combinatorics Seminar Texas A&M University.
- October 16, 2019, **Cup products on Hochschild cohomology for a family of quiver algebras**, Graduate Student Organization Seminar Texas A&M University.
- May 9, 2016, **Monomial resolution**, Seminar in Algebra Class, Spring 2016.
- January 12, 2015, **Finite p-groups all of whose cyclic subgroups A,B with  $A \cap B = 1$  generate an abelian group**, Mathematics Frontiers and Perspectives, University of Ibadan.
- December 12, 2014, Masters thesis oral defense on “**Some properties of Finite p-groups**”.

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## POSTER PRESENTATION

- March 7-8, 2020, **Gerstenhaber bracket on Hochschild cohomology of twisted tensor product algebras**, South West Local Algebra Meeting, Tulane University, New Orleans, LA.
- \*July 13-17, 2020, **Gerstenhaber bracket on Hochschild cohomology of twisted tensor product algebras**, Recent Advances and Interplay in Noncommutative algebra and Geometry, University of Washington.

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## TEACHING & MENTORING

**Texas A&M University**  
*Online Teaching Instructor*

Spring 2020  
 March-May 2020

- **Instructor of Record**, Finite Mathematics (Math 141)

Duties: Synchronous online lecture delivery through zoom. Posting lecture notes completed during class as well as lecture videos to the university eCampus system. Holding online office hours. Writing, conducting online weekly quizzes and exams and grading them as well.

**Texas A&M University**  
*Graduate Teaching Assistant*

Fall 2015 - till date

- Fall 2020 – Lab & Recitation TA, Engr Math II (Math 152)
- Summer 2020 - Research assistant - conducting research and writing thesis.
- Spring 2020 – **Instructor of Record**, Finite Mathematics (Math 141)  
 Duties include writing the course syllabus, writing and grading four exams per semester, writing weekly quizzes, and attending to students miscellaneous academic needs.
- Fall 2019 – Lab & Recitation TA, Engr Math I (Math 151)
- Summer I & II, 2019 – Help Session TA, Engineering Mathematics III (Math 251)
- Spring 2019 – Recitation TA, Functions, Trigonometry and Linear Systems (Math 150)
- Fall 2018 – **Instructor of Record**, Finite Mathematics (Math 141)
- Summer I & II, 2018 – Grader, Differential equation, Help Session, Differential Equations (Math 308)
- Spring 2018 – Grader, Methods of Applied Mathematics, Mathematical Probability (Math 601, 411).

- Fall 2017 – Lab & Recitation TA, Engr Math I (Math 151)
- Summer 2017 - Help session, Differential Equations (Math 308).
- Spring 2017 – Lab TA, Engr. Math II (Math 152)
- Fall 2016 – Lab & Recitation TA, Engr Math I (Math 151)
- Summer 2016 – Grader/Help session, Business Mathematics II (Math 142)
- Spring 2016 – Grader, Methods of Applied Mathematics (Math 601)
- Fall 2015 – Help Session, Differential Equations (Math 308)

### University of Ibadan, Oyo State, Nigeria

2013 - 2015

#### *University Tutorial Assistant*

- Fall 2014/15 - Grader & Help Session, (MAT 412) Measure and Probability
- Spring 2013/14 – Asst. tutor (MAT 412) Introduction to Measure and Probability.
- Fall 2013/14 - Help Session (MAT 221) Introduction to Real Analysis.
- Supervision and proctoring of exams and other appointed duties.

## CONFERENCE PARTICIPATION

1. June 27-28, 2020, **Early Commutative Algebra Researchers (eCARs) conference**, Zoom online meeting.
2. May 2-3, 2020, **AMS Zoom Special Session On** DG methods in commutative algebra and representation theory Conference.
3. March 7-8, 2020, **Southwest Local Algebra Meeting (SLAM)**, Tulane University, New Orleans, LA.
4. November 1-2, 2019. **AMS Fall 2019 Sectional Meeting**, University of Florida, Gainesville.
5. October 19, 2019. **Graduate Algebra Symposium**, Texas A&M University.
6. June 1-2, 2019. **Graduate Student Conference in Algebra, Geometry and Topology**, Temple University, Philadelphia.
7. May 11 – 13, 2018. **Topology Festival, Cornell University**, Ithaca, New York, USA.
8. May 13 – 15, 2016. **Topology Festival, Cornell University**, Ithaca, New York, USA.
9. February 27–28, 2016. **Southwest Local Algebra Meeting**, Texas State University, San Marcos, USA.
10. January 12, 2015. **Mathematics Frontiers and Perspective**. A two-day International Conference held in honour of a Distinguished Scholar Professor Samuel A. Ilori at the Conference Center, University of Ibadan, Ibadan.
11. July 11, 2014. **What is Schubert Calculus by Prof. Frank Sottile of Texas A & M University, USA**. Mathematics Colloquium, held at the Department of Mathematics, University of Ibadan, Ibadan.
12. May 13 - 17, 2013. **University of Ibadan, Faculty of Science International Conference on Science and Sustainable Development in Nigeria**. University conference center, University of Ibadan
13. March 1, 2012. **Nigeria Mathematical year official flag off ceremony**, Musa Yar'adua conference center, Abuja. *Presentation of gold medal and plaque by the former Nigerian Honorable Minister Of Education, Professor Ruqayyatu Rufai.*

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14. February 6 - 12, 2011. **One of 4 representatives of the University of Ibadan at the 3rd National Mathematics Competition for University Students (NAMCUS)** held at the National Mathematical Center, Abuja, Nigeria.

## SCHOLARSHIPS, AWARDS & PRIZES

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- **AMS Sectional Meeting Travel award**, Fall 2019 (\$250).
- **Alpha Kappa Alpha Educational Advancement Graduate Award**, November 2016 (\$2000)-awarded based on community service.
- University of Ibadan **Postgraduate Scholarship**, 2013 - 2015 academic sessions.
- **Gold Medalist**, Third National Mathematics Competition for University Students (NAMCUS 2011) held at the National Mathematical Center, Abuja, Nigeria. February 6-12, 2011.
- **Best Graduating Maths student**, Department of Mathematics, Class of 2011.
- Convocation prize: **The Adekunle Kukoyi Annual prize in Mathematics** for best performance at the final honors degree exams, September 2011.
- Convocation prize: **Chief Michael Okunola Akinyele Memorial prize** for the best Mathematics graduating student, September 2011.
- **Dean's Honor Award (Three times recipient)** Annual Faculty of Science Dean's Award for outstanding students who maintain a CGPA greater than or equal to 6.0/7.0. 2007/08, 2008/09 and 2009/10 academic sessions.
- **Academically outstanding finalist**, Unibadan Mathematics Student's Association, 2011 academic session.

## COMPUTING SKILLS

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<b>Typesetting</b>	Latex/Beamer, Microsoft Word, Powerpoint, Excel
<b>Software &amp; programming tools</b>	Matlab, Html, Python

## SERVICE & VOLUNTEER ACTIVITIES

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### Professional Services

- Reviewer: Zentralblatt für Mathematik und ihre Grenzgebiete (= zbMATH online) - Since Spring 2020.
- Happy hour host: DG methods in commutative algebra and representation theory, Zoom online meeting May 2-3, 2020.

### Volunteer activities

Since 2011

- Thursday July 16, 2020: Volunteer Instructor, Summer Educational Enrichment Program in Mathematics (SEE-Math), Texas A & M University (TAMU) Mathematics department.
- Saturday January 25, 2020: Volunteer, Texas A & M University (TAMU) Maths Circle.
- Tuesday March 26, 2019: Volunteer, TAMU mathematics department Annual Integral Bee.
- Saturday April 7, 2018: Volunteered as a demonstrator at the TAMU mathematics department booth at the annual Physics festival.
- Thursday, August 24, 2017: Volunteered at the new students orientation program organized by the TAMU International Students Services (ISS).

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- Saturday, October 2, 2016: Volunteered as a grader at the 25th high school maths contest held in the Blocker building of TAMU.
  - Thursday, August 25, 2016: Volunteered at the new students orientation program organized by the TAMU International Students Services (ISS).
  - Saturday April 9, 2016: Volunteered as a demonstrator at the TAMU Mathematics Department booth at the TAMU Annual Physics Festival.
  - Saturday, October 24, 2015: Volunteered as a grader at the 24th high school maths contest held in the Blocker building of TAMU.
  - May 8, 2015: Co-organizer: *Mathematics Interactive Seminar for High School Students*, Global Excellence Comprehensive College, Abesan Estate, Lagos State.
  - January 21, 2015: Co-organizer: *Enjoying Mathematics Seminar*, at Merry Stars College, Ikola Odunsi, Ipaja, Lagos State.
  - January 31, 2015: Organizer: *How to make mathematical presentations using the beamer package on Latex*. Presentation to mathematics senior undergraduate students, University of Ibadan.
  - November 16, 2013: Co-organizer with Ayomikun Adeniran: *Mathematics Interactive Seminar for High School Students*, Redeemers High School, Redemption Camp, RCCG, Lagos State.
  - December 2011: Speaker: *The Infinite Application Of Mathematics And The Role Of Students In Nation Building*. Maiden Edition of the Mathematics Colloquium organized for high school students in Abule-Egba, Lagos state, Nigeria.

## PROFESSIONAL SOCIETY

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Member, American Mathematical Society (AMS), TAMU chapter.

Member, Mathematical Association of America (MAA), TAMU chapter.