## Caleb Moxley

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**Research Interests**

Measure theoretical and topological dynamics, particularly rotation theory from a homotopical setting. Other interests in data science, financial mathematics, and mathematics education.

**Education**

**University of Alabama at Birmingham**

Ph.D. in Applied Mathematics, December 2016

- Dissertation Topic: Homotopical Complexity of Billiard Models
- Advisor: Nándor Simányi
- GAANN-supported
- Minor in Computer Science, 18 graduate credit hours

M.S. in Mathematics, May 2013

**Randolph College**

B.S. in Mathematics, B.A. in Religious Studies, May 2011

- summa cum laude, ΦBK
- Catherine I. Hastings Award in Mathematics

**Papers**

C. Moxley and N. Simányi, *Homotopical complexity of a 3D billiard flow,* accepted in Contemporary Mathematics in (May 2016).

C. Moxley and N. Simányi, *Entropy of a flow on the 3D flat torus with two disjoint orthogonal scatterers,* submitted.

C. Moxley, *Entropy of a flow on the 3D flat torus with two intersecting orthogonal scatterers,* in preparation.

**Conference Talks**

*Homotopical complexity of two billiard models*, AMS Southeastern Sectional Meeting, University of Georgia. (March 2016)

*Homotopical complexity of two billiard models on the 3D flat torus*, $28^{th}$ Applied Mathematics Meeting, University of Alabama in Huntsville. (November 2015)

*On the rotation set of a 3D flat torus with three obstacles*, AMS Southeastern Sectional Meeting , University of Alabama in Huntsville. (March 2015)

**Other Talks**

*Large deviations*, University of Alabama at Birmingham, Stochastic Processes Seminar (February 2016)

*An easy proof of the ergodic theorem*, University of Alabama at Birmingham, Stochastic Processes Seminar (October 2015)

*How to pass your qualifying exams*, SIAM-SEAS , University of Alabama at Birmingham. (March 2015)

## Teaching Experience

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| Spring 2017 | Visiting Assistant Professor, Randolph College |
| 2015–2016 | Adjunct Professor, Birmingham-Southern College |
| 2011–2016 | GTA, University of Alabama at Birmingham |
| 2014–2015 | Adjunct Lecturer, Samford University |

Courses: college algebra, quantitative reasoning, intermediate algebra, pre-calculus algebra, statistics, single variable calculus (Calculus I and II), business calculus, topology.

## Professional Travel

May 2016 Summer School on Dynamical Systems, University of Houston, NSF-supported

## Relevant Skills

Languages: English, French
Programming: Java, HTML, R, SQL, MATLAB, Python

## References

**Nándor Simányi**, Professor of Mathematics, University of Alabama at Birmingham, (205)934-2154, `simanyi@uab.edu`
**Walter Johnson**, Introductory Mathematics Curriculum Director, University of Alabama at Birmingham, (205)934-2154, `wjhmath@uab.edu`
**Heather Land**, Mathematics Lab Director, University of Alabama at Birmingham, (205)934-9063, `hland@uab.edu`
**Bernadette Mullins**, Wadsworth Area Chair and Professor of Mathematics, Birmingham-Southern College, (205)226-3026, `bmullins@bsc.edu`