# W. Frank Moore

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**EDUCATION**

**Ph.D.** Mathematics, August 2008
University of Nebraska–Lincoln
Thesis: *Cohomology of local rings*
Thesis Advisor: Professor L. Avramov, Dale M. Jensen Chair in Mathematics
**M.S.** Mathematics, May 2004
University of Nebraska-Lincoln
**B.S.** Mathematics with Honors, May 2002
University of Texas at Arlington
Honors Thesis: *Building modules having prescribed cohomological support set*
Honors Thesis Advisor: Professor D. Jorgensen

**EMPLOYMENT**

**H.C. Wang Assistant Professor**
Cornell University (2008 - Present)
**Graduate Teaching Assistant**
University of Nebraska – Lincoln (2002-2008)
**Computer Programmer**
MLS Computer Services (1999-2002)

**RESEARCH INTERESTS**

Commutative algebra
In particular, homological properties of commutative rings

**AWARDS AND FELLOWSHIPS**

**Outstanding Teaching by a GTA**, 2007
This award is given based on teaching evaluations from the students.
**Mentoring Through Critical Transition Points Fellow**, 2006
The MCTP Fellowship is granted to 3 senior graduate students
and 3 incoming first year students in the math department each year;
it provides full support for one year.
**Emeritus Faculty Fellow**, 2005-2006 and 2004-2005
The Emeritus Faculty Fellowships are given to 5 graduate students
in the math department each year, and carries a $1000 award.
**Maude Hammond Fling Fellow**, 2004-2005
The Maude Hammond Fling Fellowship is a university-wide
fellowship given to 10 graduate students a year; it provides
full support over the academic year.
**Honorable Mention, Outstanding Teaching by a GTA**, 2004
**Outstanding First Year Graduate Student**, 2003

**PUBLICATIONS**

*Standard systems of parameters and rings with finite local cohomology*,
with Hamid Rahmati, in preparation.
*Golod homomorphisms and trivial $\mathcal{G}$-type*,
with Lars W. Christensen, in preparation.
*Connected sums of Gorenstein local rings and structure of cohomology algebras*,
with Luchezar L. Avramov, preliminary version available at
http://www.math.cornell.edu/∼frankmoore.
*Hochster's theta function and the Hodge-Riemann bilinear relations*,
with Greg Peipmeyer, Sandra Spiroff, and Mark E. Walker, submitted.
Available at http://www.arxiv.org/abs/0910.1289.
*Minimal intersections and vanishing (co)homology*,
with David A. Jorgensen
Journal of Commutative Algebra 3 (2009), no. 3, 507–536
*Cohomology over fiber products of local rings*,
Journal of Algebra 321 (2009), no. 3, 758–773,

**INVITED TALKS**

**1053rd AMS Meeting**
*Hochster's theta function and the Hodge-Riemann bilinear relations, II*
Florida Atlantic University, Boca Raton, FL, October 2009

**1052nd AMS Meeting**
*Golod homomorphisms and trivial $\mathcal{G}$-type*
Penn State University, State College, PA, October 2009

**1051st AMS Meeting**
*Cohomology of connected sums of local rings*
Baylor University, Waco, TX, October 2009

**2008 Route 81 Conference**
*Hochster's theta function*
Queen's University, Kingston, ON, October 2008

**2008 Joint Mathematics Meetings**
*Cohomology of connected sums of artinian Gorenstein rings*
San Diego, CA, January 2008

**1030th AMS Meeting**
*Cohomology of connected sums of artinian Gorenstein rings*
DePaul University, Chicago, IL, October 2007

**Regional Workshop in the Mathematical Sciences**
*Resolutions over fiber products*
University of Nebraska, Lincoln, NE, October 2006

**Workshop on Hilbert functions and monomial resolutions**
*Cohomology over fiber products of local rings*
Cornell University, Ithaca, NY, May 2006

**1011th AMS Meeting**
*Cohomology over fiber products of local rings*
San Francisco State University, San Francisco, CA, April 2006

**Texas Undergraduate Mathematics Conference**
Panelist for *Life in Graduate School*
Sam Houston State University, TX, October 2005

**CONFERENCES ATTENDED BY INVITATION**

**Macaulay2 Workshop**
Mathematical Sciences Research Institute, Berkeley, CA, January 8-12, 2010

**Commutative Algebra and its Connections to Geometry**
Olinda, Pernambuco, Brazil, August 3-14, 2009

**Macaulay2 Conference**
Cornell University, Ithaca, NY, March 16-19, 2008

**Syzygies and Hilbert Functions**
Banff, Alberta, Canada, October 14-19, 2006

**Summer School on Hilbert Functions and Monomial Resolutions**
Cornell University, Ithaca, NY, May 6-13, 2006

**Commutative Algebra and its interactions with Homological Algebra, Representation Theory, Intersection Theory, and Singularity Theory**
Minnowbrook Adirondack Conference Center, NY, August 5-10, 2005

**Summer Research Conference on Commutative Algebra**
Snowbird, UT, June 19-July 1, 2005

**Mini-Course: Classical Problems in Commutative Algebra**
Salt Lake City, UT, June 7-18, 2004

**Interactions with Homological Algebra and Representation Theory**
Mathematical Sciences Research Institute, Berkeley, CA, February 3-7, 2003

**MSRI Introductory Workshop in Commutative Algebra**
Mathematical Sciences Research Institute, Berkeley, CA, September 9-13, 2002

**SEMINAR TALKS**

**Cornell Non-commutative algebra seminar**
*Rational homotopy theory and local algebra*, December 2009
**Yale Algebra Seminar**
*Hochster's theta function and the Hodge-Riemann bilinear relations*, November 2009
**Texas Tech Algebra Seminar**
*Hochster's theta function*, March 2009
**Syracuse Algebra Seminar**
*Connected sums of artinian Gorenstein rings*, February 2009
**Cornell Commutative Algebra Seminar**
*Connected sums of local rings*, October 2009
*Hochster's theta function*, October 2009
*Codimension 2 complete intersections*, October 2008
*Open problems on the Ext algebra of a local ring*, September 2008
**University of Texas at Arlington Algebra Seminar**
*Cohomology of connected sums of artinian Gorenstein rings*, November 2007
**UNL Commutative Algebra Seminar**
*On a conjecture of Boij and Söderberg*, December 2007
*Cohomology of connected sums of artinian Gorenstein rings*, October 2007
*Cohomology of fiber products of local rings*, January 2007
*Hilbert-Kunz Functions*, Spring 2004
**UNL Working Seminar on Homological Algebra of Commutative Rings**
**Co-Organizer, 2004-2008**
Expository talks given throughout the seminar.
**UNL Graduate Student Seminar**
*The Mathematics of Sudoku: Counting Sudoku Grids*, Fall 2005
*Proofs from THE BOOK*, Fall 2004

**TEACHING EXPERIENCE**

**H.C. Wang Assistant Professor**
Cornell University, 2008–Present
Courses taught or scheduled to teach as principal lecturer:
*Math 6340 (Commutative Algebra)*
*Math 4370 (Computational Algebra)*
*Math 4430 (Honors Linear Algebra for mathematics majors)*
*Math 2210 (Linear Algebra)*
*Math 1920 (Multivariable Calculus for Engineers)*
**Graduate Teaching Assistant**
University of Nebraska-Lincoln, 2002–2008
Courses taught or teaching as principal lecturer:
*Math 314 (Matrix Theory)*
*Math 221 (Differential Equations)*
Outstanding Teaching by a GTA
*Math 208 (Vector Calculus)*
*Math 203 (Contemporary Mathematics)*
*Math 106 (Calculus I)*
*Math 100A (Intermediate Algebra)*
Honorable Mention, Outstanding Teaching by a GTA
Courses taught as recitation instructor:
*Math 106 (Calculus I)*
Courses graded:
*Math 921 (Measure Theory)*
Graduate mentor for IMMERSE in 2006, a six week summer program for students starting graduate school in the fall.
Math and science tutor for seventh grade student, AY 2007-2008

**SERVICE**

**Cornell University**

Organizer, Commutative Algebra Seminar, Spring 2009, 2010
Math Club Committee, AY 2009–2010
Math 2210 Czar, Spring 2009
Admissions Committee, AY 2008–2009

**University of Nebraska**

Graduate Student Association, Jan 2006 – May 2008
*Co-Founder and Vice Chair of Finance*
Campus-wide Libraries Committee, AY 2007–2008
*Student Representative*
Annual Math Day Volunteer 2002–2008
*Van Driver and Math Bowl Moderator*
Mathematics Department Graduate Student Advisory Board, AY 2006–2007

**PROFESSIONAL MEMBERSHIPS**

**American Mathematical Society (2002–Present)**
**Mathematical Association of America (2006–Present)**