

# W. Stephen Wilson

## Education:

S.B., M.I.T. (Math) 1969  
S.M., M.I.T. (Math) 1969  
Ph.D., M.I.T. (Math) 1972

**Field:** Algebraic Topology: Homotopy Theory: Complex Cobordism: Brown-Peterson  
Homology: Morava K-theory

**Advisor:** F.P. Peterson (1930-2000)

## Positions:

2011-present Professor in the School of Education, The Johns Hopkins University  
1980-present Professor of Mathematics, The Johns Hopkins University  
1993-1996 Chair, Department of Mathematics, The Johns Hopkins University  
1977-80 Associate Professor, The Johns Hopkins University  
1974-78 Assistant Professor, Princeton University  
1972-74 Instructor, Princeton University

## Visiting Positions:

2006 (Jan-August) Senior Advisor for Mathematics, Office of Elementary  
and Secondary Education, U.S. Department of Education  
1998-99 Visiting Professor:  
Kyoto University  
Centre de Recerca Matemàtica, Institute d'Estudis Catalans  
1983-84 Visiting Professor:  
I.M.P.A., Rio de Janeiro  
University of Witwatersrand  
University of Melbourne  
National Taiwan University  
R.I.M.S., Kyoto University  
1982 (Spring) Visiting Professor, Porto University  
1980-81 Visiting Professor:  
Hebrew University  
Tata Institute of Fundamental Research  
Osaka City University  
1978 (Spring) Visiting Senior Mathematician, Oxford University  
1977-78 Member, Institute for Advanced Study, Princeton  
1975 (Spring) Visiting Assistant Professor, U.C.S.D.  
1974-75 Member, Institute for Advanced Study, Princeton

**Honors:**

Fellow of the American Mathematical Society, inaugural class, January 2013  
Conference and banquet in honor of my, and Douglas C. Ravenel's, 60th birthdays,  
March 10-13, 2007.

The Mathematical Society of Japan's Seki-Takakazu Prize for the Japan-U.S.  
Mathematics Institute, March, 2006

The Johns Hopkins University Homewood Student Council Award for Excellence in  
Teaching, 2000

A series of 10 lectures, CBMS Regional Conference, 1980, SUNY at Albany  
Alfred P. Sloan Research Fellow, 1977-1979

Invited One Hour Address, AMS Summer meeting, Duluth, Minn., 1979

**Conferences organized**

Special session at the AMS annual meeting, Baltimore, January, 1992.

Special session at the AMS annual meeting in honor of J. Michael Boardman's 60th  
birthday, Baltimore, January, 1998.

Special session at the AMS annual meeting, Washington, January, 2000.

JAMI conference at Johns Hopkins University, March, 2000.

Special session at the AMS annual meeting, Baltimore, January, 2003.

Conference in Kinosaki, Japan, in honor of Goro Nishida's 60th birthday, July, 2003.

Special session at the AMS regional meeting in honor of the 60th birthdays of  
Martin Bendersky and Don Davis, Newark, Delaware, April, 2005.

Special session at the AMS annual meeting, Baltimore, January, 2003.

Special session at the AMS annual meeting, Washington, January, 2009.

**Contact information.**

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Department of Mathematics  
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## Mathematics publications

### REFERENCES

- [1] W. S. Wilson. A new relation on the Stiefel-Whitney classes of spin manifolds. *Illinois Journal of Mathematics*, 17:115–127, 1973.
- [2] W. S. Wilson. The  $\Omega$ -spectrum for Brown-Peterson cohomology, Part I. *Commentarii Mathematici Helvetici*, 48:45–55, 1973.
- [3] D. C. Johnson and W. S. Wilson. Projective dimension and Brown-Peterson homology. *Topology*, 12:327–353, 1973.
- [4] D. C. Ravenel and W. S. Wilson. Bipolynomial Hopf algebras. *Journal of Pure and Applied Algebra*, 4:41–45, 1974.
- [5] D. C. Ravenel and W. S. Wilson. The Hopf ring for complex cobordism. *Bulletin of the American Mathematical Society*, 80:1185–1189, 1974.
- [6] W. S. Wilson. The  $\Omega$ -spectrum for Brown-Peterson cohomology, Part II. *American Journal of Mathematics*, 97:101–123, 1975.
- [7] W. S. Wilson. The  $\Omega$ -spectrum for Brown-Peterson cohomology, Part III. Unpublished, 1975.
- [8] D. C. Johnson and W. S. Wilson. BP-operations and Morava’s extraordinary K-theories. *Mathematische Zeitschrift*, 144:55–75, 1975.
- [9] H. R. Miller and W. S. Wilson. On Novikov’s  $\text{Ext}^1$  modulo an invariant prime ideal. In D. Davis, editor, *Reunion Sobre Teoria de homotopia, Universidad de Northwestern, Agosto 1974*, number 1 in Serie notas de matemática y simposia, pages 159–166, Mexico, D.F., 1975. Sociedad Matematica Mexicana.
- [10] D. C. Johnson, H. R. Miller, W. S. Wilson, and R. S. Zahler. Boundary homomorphisms in the generalized Adams spectral sequence and the nontriviality of infinitely many  $\gamma_t$  in stable homotopy. In D. Davis, editor, *Reunion Sobre Teoria de homotopia, Universidad de Northwestern, Agosto 1974*, number 1 in Serie notas de matemática y simposia, pages 47–63, Mexico, D.F., 1975. Sociedad Matematica Mexicana.
- [11] H. R. Miller, D. C. Ravenel, and W. S. Wilson. Novikov’s  $\text{Ext}^2$  and the non-triviality of the gamma family. *Bulletin of the American Mathematical Society*, 81:1073–1075, 1975.
- [12] H. R. Miller and W. S. Wilson. On Novikov’s  $\text{Ext}^1$  modulo an invariant prime ideal. *Topology*, 15:131–141, 1976.
- [13] D. C. Ravenel and W. S. Wilson. The Hopf ring for complex cobordism. *Journal of Pure and Applied Algebra*, 9:241–280, 1977.
- [14] H. R. Miller, D. C. Ravenel, and W. S. Wilson. Periodic phenomena in the Adams-Novikov spectral sequence. *Annals of Mathematics*, 106:469–516, 1977.
- [15] D. C. Johnson and W. S. Wilson. The projective dimension of the complex bordism of Eilenberg-MacLane spaces. *Osaka Journal of Mathematics*, 14:533–536, 1977.
- [16] D. M. Latch, R. W. Thomason, and W. S. Wilson. Simplicial sets from categories. *Mathematische Zeitschrift*, 164:195–214, 1979.
- [17] D. C. Ravenel and W. S. Wilson. The Morava  $K$ -theories of Eilenberg-MacLane spaces and the Conner-Floyd conjecture. *American Journal of Mathematics*, 102:691–748, 1980.
- [18] R. W. Thomason and W. S. Wilson. Hopf rings in the bar spectral sequence. *Quarterly Journal of Mathematics*, 31:507–511, 1980.
- [19] W. S. Wilson. Unstable cohomology operations. In *Topics in homotopy theory and cohomology theory. Proceedings of a Symposium held at the Research Institute for Mathematical Sciences, Kyoto University, Kyoto, October 27-29, 1980*, volume 419, pages 18–25, Kyoto University, Kyoto, Japan, March 1981. RIMS Kokyuroku.
- [20] W. S. Wilson. *Brown-Peterson homology: an introduction and sampler*. Number 48 in C.B.M.S. Regional Conference Series in Mathematics. American Mathematical Society, Providence, Rhode Island, 1982.
- [21] W. S. Wilson. Towards  $BP_*X$ . In S. Gitler, editor, *Symposium on Algebraic Topology in Honor of José Adem*, Contemporary Mathematics, pages 345–351, Providence, Rhode Island, 1982. American Mathematical Society.

- [22] W. S. Wilson. The complex cobordism of  $BO_n$ . *Journal of the London Mathematical Society*, 29(2):352–366, 1984.
- [23] W. S. Wilson. Brown-Peterson metastability and the Bendersky-Davis conjecture. *Publications of Research Institute of Mathematical Sciences, Kyoto University*, 20:1037–1051, 1984.
- [24] W. S. Wilson. The Hopf ring for Morava  $K$ -theory. *Publications of Research Institute of Mathematical Sciences, Kyoto University*, 20:1025–1036, 1984.
- [25] D. C. Johnson and W. S. Wilson. The Brown-Peterson homology of elementary  $p$ -groups. *American Journal of Mathematics*, 107:427–454, 1985.
- [26] H. S. Song and W. S. Wilson. On the non-immersion of products of real projective spaces. *Transactions of the American Mathematical Society*, 318:327–334, 1990.
- [27] D. C. Johnson, W. S. Wilson, and D. Y. Yan. Brown-Peterson homology of elementary  $p$ -groups, II. *Topology and its Applications*, 59:117–136, 1994.
- [28] J. M. Boardman, D. C. Johnson, and W. S. Wilson. Unstable operations in generalized cohomology. In I. M. James, editor, *The Handbook of Algebraic Topology*, chapter 15, pages 687–828. Elsevier, 1995.
- [29] D. C. Ravenel and W. S. Wilson. The Hopf ring for  $P(n)$ . *Canadian Journal of Mathematics*, 48(5):1044–1063, 1996.
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- [31] D. C. Johnson and W. S. Wilson. On a theorem of Ossa. *Proceedings of the American Mathematical Society*, 125(12):3753–3755, 1997.
- [32] M. J. Hopkins, D. C. Ravenel, and W. S. Wilson. Morava Hopf algebras and spaces  $K(n)$  equivalent to finite Postnikov systems. In Paul S. Selick et. al., editor, *Stable and Unstable Homotopy*, volume 19 of *The Fields Institute for Research in Mathematical Sciences Communications Series*, pages 137–163, Providence, R.I., 1998. American Mathematical Society.
- [33] D. C. Ravenel, W. S. Wilson, and N. Yagita. Brown-Peterson cohomology from Morava  $K$ -theory. *K-Theory*, 15(2):149–199, 1998.
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- [35] W. S. Wilson. Brown-Peterson cohomology from Morava  $K$ -theory, II. *K-Theory*, 17:95–101, 1999.
- [36] W. S. Wilson.  $K(n+1)$  equivalence implies  $K(n)$  equivalence. In J.-P. Meyer, J. Morava, and W. S. Wilson, editors, *Homotopy invariant algebraic structures: a conference in honor of J. Michael Boardman*, volume 239 of *Contemporary Mathematics*, pages 375–376, Providence, Rhode Island, 1999. American Mathematical Society.
- [37] J. M. Boardman, R. Kramer, and W. S. Wilson. The periodic Hopf ring of connective Morava  $K$ -theory. *Forum Mathematicum*, 11:761–767, 1999.
- [38] W. S. Wilson. The impossible made easy: Learning to calculate with generalized cohomology. In *46-th Annual Japanese Topology Symposium Proceedings, Hokkaido University*, pages 20–30, Hokkaido, Japan, July 1999.
- [39] W. S. Wilson. Hopf rings in algebraic topology. *Expositiones Mathematicae*, 18:369–388, 2000.
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- [44] N. Kitchloo and W. S. Wilson. On fibrations related to real spectra. In M. Ando, N. Minami, J. Morava, and W. S. Wilson, editors, *Proceedings of the Nishida Fest (Kinosaki 2003)*, volume 10 of *Geometry & Topology Monographs*, pages 237–244, 2007.

- [45] N. Kitchloo and W. S. Wilson. On the Hopf ring for  $ER(n)$ . *Topology and its Applications*, 154:1608–1640, 2007.
- [46] J. M. Boardman and W. S. Wilson.  $k(n)$ -torsion-free  $H$ -spaces and  $P(n)$ -cohomology. *Canadian Journal of Mathematics*, 59(6):1154–1206, 2007.
- [47] N. Kitchloo and W. S. Wilson. The second real Johnson-Wilson theory and non-immersions of  $RP^n$ . *Homology, Homotopy and Applications*, 10(3):223–268, 2008.
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- [50] W. S. Wilson and D.Y. Yan. Stable splitting of the complex connective K-theory of  $BO(n)$ . *Topology and its Applications*, 159:1409–1414, 2012.
- [51] J. González, M. Velasco, and W. S. Wilson. Biequivariant maps on spheres and topological complexity of lens spaces. *Communications in Contemporary Mathematics*, 15(3), 2013. 33 pages.
- [52] N. Kitchloo and W. S. Wilson. Unstable splittings for real spectra. *Algebraic and Geometric Topology*, 13(2):1053–1070, 2013.
- [53] N. Kitchloo and W. S. Wilson. The Morava K-theory of  $BO(q)$  and  $MO(q)$ . *Algebraic and Geometric Topology*, 15:3049–3058, 2015.
- [54] N. Kitchloo and W. S. Wilson. The  $ER(n)$ -cohomology of  $BO(q)$  and real Johnson-Wilson orientations for vector bundles. *Bulletin of the London Mathematical Society*, 47(5):835–847, 2015.
- [55] N. Kitchloo, V. Lorman, and W.S. Wilson. Landweber flat real pairs, and  $ER(n)$ -cohomology. *Advances in Mathematics*, 322:60–82, 2017.
- [56] N. Kitchloo, V. Lorman, and W.S. Wilson. The  $ER(2)$ -cohomology of  $BZ/(2^q)$  and  $CP^n$ . *Canadian Journal of Mathematics*, 70(1):191–217, 2018.
- [57] N. Kitchloo, V. Lorman, and W.S. Wilson. Multiplicative structure on real Johnson-Wilson theory. *AMS Contemporary Mathematics*, New Directions in Homotopy Theory, 2018. to appear.
- [58] N. Kitchloo, V. Lorman, and W.S. Wilson. The  $ER(2)$ -cohomology of  $x^n CP^\infty$  and  $BU(n)$ . 2018. In draft.

## Education papers

### REFERENCES

- [1] W. S. Wilson and D.Q. Naiman. K-12 calculator usage and college grades. *Educational Studies in Mathematics*, 56:119–122, 2004.
- [2] David Klein, with Bastiaan J. Braams, Thomas Parker, William Quirk, Wilfried Schmid, and W. Stephen Wilson. Technical assistance from Ralph A. Raimi and Lawrence Braden. Analysis by Justin Torres. Foreword by Chester E. Finn, Jr. *The State of the State MATH Standards*. Thomas B. Fordham Foundation, Washington, D.C., January 2005.
- [3] W. S. Wilson. Short response to Tunis’s letter to the editor on technology in college. *Educational Studies in Mathematics*, 58:415–420, 2005.
- [4] et al. K. Budd. Ten myths about math education and why you shouldn’t believe them. <http://www.math.jhu.edu/~wsw/ED/10myths.pdf>, May 2005.
- [5] Barbara Reys, Carolyn Baldree, Donna Taylor, and W. S. Wilson. Grade 6: Process and standards. In Johnny W. Lott and Kathleen Nishimura, editors, *Standards & Curriculum: A view from the Nation*, pages 29–32, Reston, Virginia, 2005. NCTM.
- [6] Linda Plattner with W. S. Wilson. Washington state mathematics standards: Review and recommendations. On-line at Washington State Board of Education, August 2007.
- [7] Linda Plattner with W. S. Wilson. A report to the Washington State Board of Education: Follow-up to Review and Recommendations. On-line at Washington State Board of Education, February 2008.
- [8] Linda Plattner with W. S. Wilson. A report to the Washington State Board of Education: Second review of Washington K-12 mathematics standards. On-line at Washington State Board of Education, March 2008.
- [9] Linda Plattner with W. S. Wilson. Revised K-8 mathematics standards, Washington state. On-line at Washington State Board of Education, April 2008.
- [10] Linda Plattner with W. S. Wilson. Revised 9-12 mathematics standards, Washington state. On-line at Washington State Board of Education, July 2008.
- [11] W. S. Wilson. What do college students know? *Education Next*, 8(4):88, Fall 2008. Unabridged version: [http://media.hoover.org/documents/ednext\\_20084\\_88\\_unabridged.pdf](http://media.hoover.org/documents/ednext_20084_88_unabridged.pdf).
- [12] W. S. Wilson. Review of mathematical soundness: Background notes for WA state curriculum study. On-line at Washington State Board of Education, October 2008.
- [13] W. S. Wilson. Arithmetic, geometry, and calculus III. A comparison of arithmetic and geometry skills with Calculus III grades. <http://www.math.jhu.edu/~wsw/ED/arithgeomstudy08.pdf>, December 2008.
- [14] W. S. Wilson. Elementary school mathematics priorities. *AASA Journal of Scholarship & Practice*, 6(1):40–49, Spring 2009.
- [15] W. S. Wilson. Washington State High School Math Text Review. On-line at Washington State Board of Education or <http://www.math.jhu.edu/~wsw/ED/wahighschoolwsw.pdf>, March 2009.
- [16] G. Martino with W.S. Wilson. Doing the math: Are maryland’s high school math standards adding up to college success? Technical report, The Abell Foundation, Baltimore, Maryland, April 2009.
- [17] Sheila Byrd Carmichael, W. Stephen Wilson, Chester E. Finn, Jr., Amber M. Winkler, and Stafford Palmieri. *Stars by which to Navigate? Scanning National and International Education Standards in 2009. An Interim Report on Common Core, NAEP, TIMSS, and PISA*. Thomas B. Fordham Institute, Washington, D.C., October 2009.
- [18] Sheila Byrd Carmichael, W. Stephen Wilson, Gabrielle Martino, Chester E. Finn, Jr., Kathleen Porter-Magee, and Amber M. Winkler. *Review of the Draft K-12 Common Core Standards*. Thomas B. Fordham Institute, Washington, D.C., March 2010.
- [19] Sheila Byrd Carmichael, Gabrielle Martino, Kathleen Porter-Magee, and W. Stephen Wilson with Daniela Fairchild, Elizabeth Haydel, Diana Senechal, and Amber M. Winkler. Foreword by Chester E. Finn, Jr., and Michael J. Petrilli. *The State of State Standards—and the Common Core—in 2010*. Thomas B. Fordham Institute, Washington, D.C., July 2010.
- [20] W. S. Wilson. Arithmetic, division, calculus III and beyond. A look at long division among students and the consequences of not knowing it. <http://www.math.jhu.edu/~wsw/ED/arith3.pdf>, September 2010.

- [21] W. S. Wilson. In Defense of Mathematical Foundations. *Education Leadership*, 68(6):70–73, March 2011.
- [22] G. Harel and W. S. Wilson. The state of high school textbooks. *Notices of the AMS*, 58(6):283–286, June/July 2011.
- [23] W. S. Wilson. *SBAC Math Specifications Don't Add Up*. Flypaper, Thomas B. Fordham Institute, September 19, 2011.  
<http://www.educationgadfly.net/flypaper/2011/09/guest-post-sbac-math-specifications-dont-add-up/> or <http://www.math.jhu.edu/~wsw/ED/flypaper.pdf>.
- [24] W. S. Wilson. Arithmetic versus the elite. A detailed look at how top students do on a simple arithmetic test.  
<http://www.math.jhu.edu/~wsw/ED/arithprob.pdf>, December 2011.
- [25] Z. Wurman and W.S. Wilson. The common core math standards. *Education Next*, 12(3), Summer 2012.
- [26] W. S. Wilson. *Review of Draft Texas Mathematics Standards 2012*. Common Core Watch, Thomas B. Fordham Institute, April 17, 2012.  
<http://www.math.jhu.edu/~wsw/ED/texas4.pdf>.
- [27] Paul R. Gross with Lawrence S. Lerner, John Lynch, Martha Schwartz, Richard Schwartz, and W. Stephen Wilson. Foreword by Chester E. Finn, Jr. and Kathleen Porter-Magee. *Commentary & Feedback on Draft I of the Next Generation Science Standards*. Thomas B. Fordham Institute, Washington, D.C., June 2012.  
<http://www.math.jhu.edu/~wsw/FORD/draft1-science.pdf>.
- [28] Paul R. Gross with Douglas Buttrey, Ursula Goodenough, Noretta Koertge, Lawrence S. Lerner, Martha Schwartz, and Richard Schwartz, Math Feedback provided by William Schmidt and W. Stephen Wilson. Foreword by Chester E. Finn, Jr. and Kathleen Porter-Magee. *Commentary & Feedback on Draft II of the Next Generation Science Standards*. Thomas B. Fordham Institute, Washington, D.C., January 2013.  
<http://www.math.jhu.edu/~wsw/FORD/Science-Standards-Draft-II.pdf>.
- [29] Alice Crary and W. Stephen Wilson. *The Faulty Logic of the 'Math Wars'*. New York Times, New York, NY, June 16 2013.  
<http://opinionator.blogs.nytimes.com/2013/06/16/the-faulty-logic-of-the-math-wars>.
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<http://www.math.jhu.edu/~wsw/FORD/AppendixL.pdf>.
- [31] W. S. Wilson. A little starter test for calculus 2. An analysis of a test given the first day of class.  
<http://www.math.jhu.edu/~wsw/papers/a-little-test.pdf>, February 2014.

## Edited collections

### REFERENCES

- [1] J.-P. Meyer, J. Morava, and W. S. Wilson, editors. *Homotopy invariant algebraic structures: a conference in honor of J. Michael Boardman*, volume 239 of *Contemporary Mathematics*. American Mathematical Society, Providence, Rhode Island, 1999.
- [2] D. Davis, J. Morava, G. Nishida, W. S. Wilson, and N. Yagita, editors. *Recent Progress in Homotopy Theory: Proceedings of a conference on Recent Progress in Homotopy Theory March 17-27, 2000, Johns Hopkins University, Baltimore, MD.*, volume 293 of *Contemporary Mathematics*. American Mathematical Society, Providence, Rhode Island, 2002.
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## Miscellaneous

### REFERENCES

- [1] W. S. Wilson. Wei-Liang Chow. *Notices of the American Mathematical Society*, 43(10):1117–1124, October 1996. Organizer.
- [2] W. S. Wilson. Hopf ring. In *Encyclopaedia of Mathematics, Supplementary Volume I*, pages 299–300. Kluwer Academic Publishers, 1997.
- [3] E. C. Scott with a few hundred Steves including W. S. Wilson. The morphology of Steve. *Annals of Improbable Research*, 10(4):24–29, July/August 2004.

## Education activities

**Winter-Spring 1999:** While visiting Japan for 8 months we enrolled our son in the local public school. This gave us a very personal view of mathematics education in Japan. Through my many visits to Japan and with my many connections to Japanese mathematicians I have kept track of mathematics education issues in Japan.

**November 1999:** I signed the *Open letter to Richard Riley*, Secretary of Education.

**2000:** The Johns Hopkins University Homewood Student Council Award for Excellence in Teaching.

**1999-2002:** Son used *TERC Investigations* for 2nd, 3rd, and 4th grades.

**Summer 2001:** I wrote the Friends School of Baltimore a well informed letter about mathematics education and TERC in particular.

<http://www.math.jhu.edu/~wsw/ED/pam1.pdf>

**Winter 2001-2:** I helped Jerry Dancis with a petition about the “Algebra” test in Maryland.

<http://www.math.jhu.edu/~wsw/ED/petitiondancis.html>

**February 2002:** Survey of mathematicians about arithmetic and calculator usage:

<http://www.math.jhu.edu/~wsw/ED/list>



**February 2002:** I joined a group being organized by Robin West (among others) to try to influence mathematics education at the Friends School of Baltimore.

**March 4, 2002:** Attend Lynn Cheney's American Enterprise Institute conference: *Does two plus two still equal four?*

<http://www.aei.org/events/eventID.193/transcript.asp>

**September 2002:** I became a "national advisor" to NYC HOLD, a group fighting for mathematics education in New York City, organized, in large part, by Elizabeth Carson.

<http://www.nychold.com>

**October 21, 2002:** On a panel for a meeting of teachers for the Association of Independent Maryland Schools. What I had to say: <http://www.math.jhu.edu/~wsw/ED/panel>

**December 2002:** Gave a survey to all students at Johns Hopkins University in big service courses on their calculator usage in K-12.

**2002-2003:** Son used *Everyday Math* for 5th grade.

**July 17, 2003:** Meet with a teacher and an administrator about the mathematics program for high school for the Ingenuity Project at Baltimore Polytechnic.

<http://www.ingenuityproject.org>

**October 24, 2003:** Meet with teachers and administrators from the Odyssey School about their mathematics program.

**2003-2004:** Son used *Singapore Math* for 6th grade in public school in Baltimore.

**2004:** On a panel for the Fordham Foundation to evaluate the K-12 mathematics standards for all states.

**May 22, 2004:** Attend the National Association of Scholars National Conference in New York City and its NYC-HOLD panel.

**2004:** W.S. Wilson and D.Q. Naiman. K-12 Calculator usage and college grades. *Educational Studies in Mathematics*, 56:119-122,2004.

<http://www.math.jhu.edu/~wsw/ED/pubver.pdf>

This paper shows that our students who had calculators "encouraged and emphasized" in K-12 had lower grades in their large service mathematics classes at Johns Hopkins University.

**July 21-24, 2004:** A research mathematician representative at the conference: *Mathematics Curriculum: A National View*, a meeting of the Association of State Supervisors of Mathematics and the Board of the National Council of Teachers of Mathematics and a few research mathematicians run by Johnny Lott.

This was an amazing opportunity to get to know some of the people in charge of getting state K-12 mathematics standards written and to get some insight into the problems they have to deal with.

**July 25-28, 2004:** Participated in a conference, the *Mathematics Standards Study Group*, organized by Roger Howe, of a dozen research mathematicians interested in K-12 mathematics education.

This conference followed up on the conference run by Johnny Lott. A multifaceted publication will come out from this conference. My contribution is mostly to the “lead essay” where we try to answer the question asked in the first conference: what is important?  
<http://www.math.jhu.edu/~wsw/ED/LeadEssay.pdf>

**September 2004-Present:** Appointed by Provost Steven Knapp to the Johns Hopkins Council on K-12 Education.

**October 15, 2004:** Invited to participate as a representative of the professional mathematics community at a meeting of the Board of the Adult Numeracy Network.

**November 2004:** Did a writeup about mathematics for people who help in an after school program. (Really for the people who train them from Educational Equity Concepts.)  
<http://www.math.jhu.edu/~wsw/ED/after.pdf>

**Winter 2004-5:** The Johns Hopkins University contact person for Teach for America.

**2005:** W.S. Wilson. Short response to Tunis’s letter to the editor on technology in college. *Educational Studies in Mathematics*, 2005 (58):415–420.  
<http://www.math.jhu.edu/~wsw/ED/EDUCTunis.pdf>

I was given the opportunity to write pretty much whatever I wanted by the editor of the journal.

**January 2005:** David Klein, with Bastiaan J. Braams, Thomas Parker, William Quirk, Wilfried Schmid, and W. Stephen Wilson. Technical assistance from Ralph A. Raimi and Lawrence Braden. Analysis by Justin Torres. Foreword by Chester E. Finn, Jr. *The State of the State MATH Standards*. Thomas B. Fordham Foundation. (130 pages.)  
<http://www.math.jhu.edu/~wsw/ED/mathstandards05FINAL.pdf>

**January 2005:** Testified before the Maryland State Board of Education.

**January 2005:** Advised Ralph Fessler, the Dean of Johns Hopkins University’s School of Professional Studies in Business and Education, on elementary school mathematics programs for the new elementary school Johns Hopkins is going to run in the near future.

**February-June 2005:** Consult with Johns Hopkins University Professor Peggy King-Sears and participate in her focus group. She is developing a Johns Hopkins University course of study and certificate for mathematics teachers for middle and high school.

**April 6, 2005:** Meet with Senator Frist’s Education staffer and, later the same day, the House Science Committee Staff. Seven of us from around the country were in on these meetings about K-12 mathematics education. I was the mathematician for the group.

**May 4, 2005:** One of 10 authors of *Ten Myths about math education and why you shouldn’t believe them*. <http://www.math.jhu.edu/~wsw/ED/10myths.pdf>

**May 24, 2005:** Testify before the Governor’s Commission on Quality Education.  
<http://www.math.jhu.edu/~wsw/ED/steele.pdf>

**May 31, 2005:** Washington Post article by Jay Mathew’s “10 Myths (Maybe) About Learning Math.” I was one of the several authors of the “10 Myths”.  
<http://www.nychold.com/myths-050504.html>

**June, 2005:** The writings of the *Mathematics Standards Study Group* have appeared on the web at:  
<http://www.admin.ias.edu/ma/current/LectureNotes.php>

The essay I was most involved with (with Alan Tucker):  
<http://www.math.jhu.edu/~wsw/ED/Generalessay.pdf>

**June 1, 2005** Hear Diane Ravitch and others talk at the Brookings Institution about the education reforms in New York City.

**June 9, 2005** Johns Hopkins K-12 Council met with President Brody. He suggested a major Johns Hopkins University K-12 mathematics and science initiative.

**July 8, 2005:** Met with Provost Steven Knapp of Johns Hopkins University to talk about his involvement in K-12 mathematics education in Maryland.

**September 9, 2005** American Enterprise Institute forum: The Department of Education Twenty-Five Years Later, with William Bennett, Lamar Alexander, Rod Paige and Andrew Rotherham.

**September 14-15, 2005** Brookings Institution. Conference on Algebraic Reasoning: Developmental, Cognitive, and Disciplinary Foundations for Instruction.  
<http://www.brookings.edu/brown/algebraconference.aspx>

**September 21, 2005** Johns Hopkins University Council on K-12 Education. Planning for STEM initiative.

**January-August, 2006:** Senior Advisor for Mathematics, Office of Elementary and Secondary Education, United States Department of Education.

**January 24, 2006** Observe at the National Board for Education Sciences (which oversees the Institute for Education Science) meeting.

**February 3, 2006** Spend afternoon with the National Council of Teachers of Mathematics (NCTM) writing committee for the Curriculum Focal Points.

**March 2-5, 2006** Finding Common Ground in K-12 Mathematics Education. Indianapolis, Indiana.

**April 18, 2006** I was there when President Bush formally announced the creation of the National Mathematics Advisory Panel.

**April 26, 2006** Protecting Maryland's Competitive Edge. An Action Summit hosted by the University of Maryland.

**May 5, 2006** Talk to the Conference Board of the Mathematical Sciences about the National Mathematics Advisory Panel.

**May 7-10, 2006** Invited participant in a Mathematical Sciences Research Institute (MSRI) conference: Raising the floor: Progress and setbacks in the struggle for quality mathematics education for all, Berkeley, California.

**May-June, 2006** Advisor to the National Mathematics Advisory Panel.

**May 22, 2006** National Mathematics Panel meeting. Washington, D.C.

**May 23, 2006** Accelerating the K-12 Mathematics and Science Curriculum: Agenda for the 21st Century. The Third Annual Johns Hopkins Education Summit. I served on the panel: Thinking Big: Setting the K-12 Math and Science Agenda.

**May 23-24, 2006** Russell Gersten's Center of Instruction workshop, University of Michigan, Ann Arbor, Michigan.

**June 21-22, 2006** Observe the meeting of the National Academy's Study of Teacher Preparation Programs. Washington, D.C.

**July 10-12, 2006** Park City Workshop on Middle School Mathematics, organized by Roger Howe and Alan Tucker.

**September, 2006** Thanked in the introduction to the NCTM's Curriculum Focal Points.

**Fall, 2006** Advised Matthew Peterson of the MIND Institute on mathematics for his Algebra Readiness text.

**October 19-21, 2006** Represented the Johns Hopkins University Department of Mathematics at the Washington D.C. meeting of the American Mathematical Society Committee on Education where the new College Board mathematics standards were trashed.

**December, 2006, and January, 2007** Pre-publication review of the mathematics content in the K-2 portion of a Houghton Mifflin mathematics program.

**January, 2007** Help with the Frederick County Education Reform review and web site organized by Tom Neumark and others.

**March, 2007** At the request of the Florida K-12 Chancellor I reviewed most of the draft of the revision for the mathematics content standards for Florida.

**April - August, 2007** Wrote a background overview of Washington state's K-12 mathematics standards for Strategic Teaching's *Washington State Mathematics Standards: Review and Recommendations*. Also helped with the final touches on the writing of the report.

**July 30-31, 2007** Attended the California 2007 mathematics adoptions meetings for Algebra Readiness programs in order to support the MIND Institute's program.

**August, 2007** Helped Linda Plattner of Strategic Teaching write a summary of a comparison of the American Diploma Project with other standards.

**July, 2007 - January, 2009** On the American Mathematical Society's Advisory Board for the Working Group on Preparation for Technical Careers.

**Oct 8, 2007** Meet with Andres Alonso, Baltimore City Public School's new CEO, about setting up an Advisory Board for Mathematics for him.

**Oct, 2007** Set up an Advisory Board for Mathematics for Baltimore City Public Schools.

**Oct 25, 2007** AEI event: The Supply Side of School Reform and the Future of Educational Entrepreneurship

**October 25-27, 2007** Represented the Johns Hopkins University Department of Mathematics at the Washington D.C. meeting of the American Mathematical Society Committee on Education.

**November 28, 2007** Attend National Mathematics Panel meeting. Baltimore, Maryland.

**January 16, 2008** Meet with the new head of mathematics for the Baltimore City Public School System to talk about the HSA and an algebra readiness course.

**February 5, 2008** Help review the revised Washington State K-12 mathematics standards and report to the Washington State Board of Education.

**March 10, 2008** Help review the next revision of the Washington State K-12 mathematics standards and report to the Washington State Board of Education.

**Winter-Spring 2008** Help evaluate the Fulton County, Georgia, mathematics curriculum and its alignment with the state's standards. In particular, this was an opportunity to review the new TERC Investigation fifth grade materials, the new Connected Mathematics Project (all grades 6-8), some Core-Plus and SIMMS.

**April 24, 2008** One of three presenters, along with R. James Milgram and William H. Schmidt, at the Leading Minds K-12 Math Education Forum.

<http://www.baltimorecp.org/leadingminds/k12math/>

**May 1, 2008** Help present a draft of the revised Algebra 1 and Geometry standards to the Washington State Mathematics Panel.

**May 14-16, 2008** Mathematical Sciences Research Institute (MSRI) conference on Critical Issues in Education: Teaching and Learning Algebra.

**November 21, 2007 and May 20, 2008** Meet with the Abell Foundation to discuss the algebra preparation of Baltimore City Public Schools for the local Community Colleges.

**Spring-Summer 2008** Help rewrite the revised Washington State K-12 mathematics standards. K-8 approved by the State Board of Education on April 28, 2008. July, 2008, 9-12 standards approved.

**June 11, 2008** Testify for mathematics education to the Frederick County Public Schools Board of Education. The posting includes a brief review of the new TERC Investigations.

<http://www.math.jhu.edu/~wsw/ED/fred.pdf>

**June 17, 2008** On a panel for the Greater Baltimore Committee's Education Committee.

**July 9, 2008** Meet with the Abell Foundation and agree to supervise Gabrielle Martino on a study of Baltimore City's alignment with the math placement test used at local community colleges.

**September, 2008** A paper looking at the correlation between arithmetic test scores, geometry test scores, and grades in Calculus III: Arithmetic, Geometry, and Calculus III.

<http://www.math.jhu.edu/~wsw/ED/arithgeomstudy08.pdf>

**September 3, 2008** Give a colloquium at Lehigh University to the Department of Mathematics on K-12 mathematics education.

**October, 2008** Made a member of the Advisory Council to the MIND Research Institute on issues related to equal access to knowledge and skills in mathematics.

**October 21, 2008** Panel member for the MIND Research Institute Forum. National Academy of Sciences. Washington DC.

**October 27, 2008** Strategic Teaching's final report on K-8 textbooks for Washington State along with my math review.

<http://www.math.jhu.edu/~wsw/ED/streview.pdf>

<http://www.math.jhu.edu/~wsw/ED/wswmathreview.pdf>

**January 22, 2009** On a panel at Sidwell Friends in Washington, DC, to discuss what math students need to know when they go to college.

**March 2009** Report on mathematical soundness of Washington State high school textbooks

<http://www.math.jhu.edu/~wsw/ED/wahighschoolwsw.pdf>

to go with Strategic Teaching's report

<http://www.math.jhu.edu/~wsw/ED/SThs.pdf>

for the State Board of Education.

**April 14, 2009** Alliance for Excellent Education one day conference: Meaningful Measurement: The Role of Assessments in Improving High School Education in the Twenty-First Century. Washington, D.C.

**April 18, 2009** The Founding Advisory Board for a new Charter school in Washington, D.C., the Cordova Science and Technology College Prep Institute. First meeting.

**April 21, 2009** Advisory Council meeting for the MIND Research Institute. Washington, D.C.

**April 23-25, 2009** NCTM meeting, Washington, D.C.

**April, 2009** Publication of "Doing the Math: Are Maryland's High School Math Standards Adding Up to College Success?" by Gabrielle Martino with W. Stephen Wilson. Published by the Abell Foundation, Baltimore, Maryland.

**May 5, 2009** International Lessons about National Standards. An all day event sponsored by the Thomas B. Fordham Institute, Washington, D.C.

**May 6, 2009** Learning, Arts, and the Brain Summit. An all day event at the American Visionary Art Museum, Baltimore, Maryland. Sponsored in part by the JHU K-12 Council.

**May 12, 2009** Scientific Evidence in Education Forums: Building a Foundation for the Future: A Discussion on the Latest Research on Elementary School Math Curricula. Washington, D.C.

**May 18, 2009** Invited speaker at a parent's organized Frederick County, Maryland, meeting about: TERC: The Untold Story. Mt. Airy, Maryland.

**May 28, 2009** Attend Maryland State Board of Education Meeting for Alan Ginsburg's presentation on Singapore Mathematics and Achieve's review of Maryland's K-8 curriculum by Laura Stover and Matt Gandal.

**June 11-12, 2009** Attend the National Summit on 21st Century Skills in Washington, D.C.

**Summer-Fall-Winter, 2009, Spring 2010** Member of the mathematics Feedback Group for the Common Core State Standards of the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO).

**August, 2009** One of the authors of a letter to U.S. Secretary of Education Arne Duncan from mathematicians.

<http://www.math.jhu.edu/~wsw/ED/RTTTPublicLetter.pdf>

**October, 2009** Publication of "Stars by which to Navigate? Scanning National and International Education Standards in 2009. An Interim Report on Common Core, NAEP, TIMSS, and PISA." by Sheila Byrd Carmichael, W. Stephen Wilson, Chester E. Finn, Jr., Amber M. Winkler, and Stafford Palmieri. Published by the Thomas B. Fordham Institute, Washington, D.C.

**October 16, 2009** Panelist at the Maryland Council of Teachers of Mathematics Annual Conference: Gaining Clarity on the Common Core Standards Initiative - Implications for us All. Germantown, Maryland.

**November 4, 2009** Panelist at the Fordham Institute on the release of the publication “Stars by which to Navigate?” above.

**December 7, 2009** JHU School of Education “Shaping the Future: What’s Next after No Child Left Behind?” The symposium featured Maryland State Superintendent of Schools, Nancy Grasmick, Baltimore City Public Schools CEO, Andres Alonso and Undersecretary of Education Martha Kanter. In addition, the JHU folks were Robert Slavin, James McPartland and Mariale Hardiman.

**December, 2009-Present** On Advisory Board for the Frederick Classical Charter School.

**December, 2009-Present** Appointed to the Advisory Board for an Education minor, joint between the Krieger School of Arts and Sciences and the School of Education.

**February 16, 2010** Hour talk at math night for the proposed Frederick Classical Charter School.

**March 30, 2010** Meet with the Interim Dean of the JHU School of Education, the chair of teacher preparation and the person in charge of mathematics education.

**April, 2010-14** Begin 4 year consultancy on the Advisory Board for an IES funded project with SRI International, the Berkeley Evaluation & Assessment Research Center, and the Center for Applied Special Technology. The project is: Learning Progressions: Developing a Universally Designed Formative and Summative Math Assessment System to Improve Learning Outcomes for Students with Learning Disabilities.

**April 20, 2010** Visited Rider University to review their mathematics department for the university with one other reviewer. Produced report.

**May 5, 2010** Johns Hopkins University Neuro-Education Initiative Summit: Attention and Engagement in Learning. Table facilitator for the all day event at the American Visionary Art Museum, Baltimore, Maryland.

**May 7, 2010** Meet with Francine Johnson, in charge of mathematics education in the JHU School of Education.

**June 15, 2010** Featured Mathematics Panelist, The Learning Institute, Bryant, Arkansas. Common Standards, Common Sense: What the Common Core State Standards Mean for Arkansas. With panelists Carol Jago, Sandra Stotsky, and Nancy Livingston.

**September, 2010** A study of what happens to students who don’t know long division: Arithmetic, Division, Calculus III, and Beyond.

<http://www.math.jhu.edu/~wsw/ED/arith3.pdf>

**September 20, 2010** Helped the Maryland State Department of Education with the transition from Maryland’s standards to the Common Core Standards.

**December 6, 2010** Back to basics for the “division clueless.” An article about my work in the Johns Hopkins Magazine, Winter, 2010.

<http://magazine.jhu.edu/2010/12/back-to-basics-for-the-division-clueless/>  
<http://www.math.jhu.edu/~wsw/ED/devclue.pdf>

**January 3, 2011 MARYLAND FORWARD** Governor's Forum on Education and Skills. Bowie State University.

<http://www.math.jhu.edu/~wsw/ED/mdforward2.pdf>

**January 20, 2011** Spent the day at a middle school in Central Islip, New York, talking to math teachers and students.

**March 2, 2011** On an expert panel (with Skip Fennell and Donna Watts) to advise a task force in Frederick County, Maryland, on the choice of a new elementary school math program (after their school board threw out TERC Investigations).

**March 7, 2011** Spend the day with Jason Zimba in Vermont.

**March 24, 2011** I was given a secondary appointment as a Professor in the School of Education at Johns Hopkins University.

**March 30, 2011** Attend Annual Capitol Hill Luncheon for the Center for Excellence in Education.

**April 21, 2011** Participant, Higher Education Review of Maryland Common Core State Curriculum Frameworks, at the University System of Maryland Office.

**April 25, 2011** The Future of Teaching: New Standards, New Tests, and New Evaluations - What does it all mean? A symposium with Randi Weingarten, Sonja Brookings Santelises, Richard Lemons, and Michael Cohen. Johns Hopkins University.

**May 11-13, 2011** Invited speaker at the workshop Critical Issues in Mathematics Education 2011: Mathematical Education of Teachers. Mathematical Sciences Research Institute (MSRI), Berkeley, CA.

**May 23, 2011** Attend American Enterprise Institute event: Carrots, Sticks, and the Bully Pulpit: Sobering Lessons from a Half Century of Federal Efforts to Improve America's Schools. Washington, D.C. All day event with five panels.

**May 26, 2011** Attend Alliance for Excellent Education briefing: "A Time for Deeper Learning: Preparing Students for a Changing World." Washington, D.C. (Gov. Bob Wise, Barbara Chow, Scott Palmer, Michael Feuer, Robert Lenz, Deborah Parizek, David Steiner, and Tom Washnicki)

**June 3, 2011** Video interviewed by Michele Mazzocco for an education class.

**June 7, 2011** Attend *Education Week's* release of *Diplomas Count 2011*. Pew Charitable Trusts, Washington, D.C.

**July 15, 2011** Spend two hours talking with Michele Mazzocco's class at JHU's School of Education.

**July 27 and 28, 2011** Consult on the Advisory Board for a large education grant with SRI International.

**September 19, 2011** On-line critique of the the SBAC Math Specifications for the Fordham Institute.

**September 26 and December 15, 2011** Meet with faculty at the Learning Research & Development Center at the University of Pittsburgh to advise on a major study of mathematics education they are preparing for.



**August, 2011 to summer 2012** Member of Johns Hopkins University's Gateway Science Committee.

**August and September, 2011** Reviewer for I3 grants.

**November 1, 2011** Advisory Council meeting for the MIND Research Institute.

**November 19, 2011** Speaker at conference: The Art and Science of Math Education, University of Winnipeg.

**December 2, 2011** Attend Carl Weiman's lecture on college physics teaching.

**December 5, 2011** Attend the School of Education at Johns Hopkins University panel on Shaping the Future: Examining Critical Issues in Education. Education reform: What will work best for schools? Panelists were Michael Yudin, Assistant Secretary for Elementary and Secondary Education, Michael Petrilli, Executive Vice President, Fordham Foundation, and Deborah Meier, Senior Scholar at New York University's Steinhardt School of Education.

**December, 2011** Write up a detailed analysis of an arithmetic test for elite students: Arithmetic versus the Elite. <http://www.math.jhu.edu/~wsw/ED/arithprob.pdf>

**January-Present, 2012** Made a member of the Partnership for Assessment of Readiness of College and Careers (PARCC) Content Technical Working Group (CTWG) for Mathematics.

**January, 2012** JHU Gateway Science Initiative (2 year) Grant from the Provost's Office to make Khan Academy style videos for our service courses.

**January 20, 2012** Symposium on Teaching Excellence in the Sciences, Johns Hopkins University. Main speakers: Jo Handelsman, David Botstein, Eric Mazur, and Freeman Hrabowski. I had to do a poster for winning a Gateway Science Initiative grant from the Provost's office.

**January 27, 2012** Higher education review of Maryland State Department of Education unit plans for Common Core mathematics. Technology Center, University of Maryland Baltimore County-South Campus.

**January-February, 2012** Review math curriculum modules for New York state.

**February 1, 2012** The Thomas B. Fordham Institute, "What's holding back America's Science Performance?" Panelists, Dan Willingham, Kate Walsh, Kathleen Porter-Magee, Anne Jones, and Stephen Pruitt, with moderator Chester E. Finn. Jr. Talked with David Driscoll quite a bit (form super for Massachusetts).

**February, 2012** Draft math standards for elementary and middle school teachers for Illinois.

**March 15-16, 2012** Meeting of the PARCC Content Technical Working Group at Achieve in Washington, D.C.

**May, 2012** Reviewer for I3 grants.

**November 30, 2012** Attend math education colloquium at the University of Maryland to see Jason Zimba.

**December 9, 2012** Applied Physics Laboratory Parent STEMpowerment Workshop, invited panelist.

**January 17, 2013** Attend, (and on planning committee for), the 2nd Annual Symposium on Excellence in Teaching and Learning in the Sciences, with keynote speakers William Durden, Daphne Koller and Robin Wright.

**January 24, 2013** Speak with Dwight Carr and team at APL about lesson plans.

**February 1, 2013** Higher Education Review of lesson plans for the Maryland State Department of Education.

**February 8, 2013** On a panel with Stephen Pruitt from Achieve (in charge of NGSS) on “Standard Issue?” for the meeting of the National Education Writers Association, *Under the Microscope: Examining STEM Education*.

**April 3-5, 2013** Mathematical Sciences Research Institute (MSRI) conference on Critical Issues in Education: Assessment of Mathematical Proficiencies in the Age of the Common Core.

**April 23-24, 2013** Meeting of the PARCC Content Technical Working Group at Achieve in Washington, D.C.

**June 17, 2013** Conference on *The Many Ways of Inquiry Based Learning* at the University of Chicago.

**July 9, 2013** Attend Symposium on *The Nation’s Report Card and 12th Grade Academic Preparedness* put on by the National Assessment Governing Board. Washington, D.C.

**September 26, 2013** Attend Symposium on *Ready to teach: preparing new teachers for the classroom* put on by the Baltimore Curriculum Project and Loyola University of Maryland. Baltimore, MD. (Included James Hennessy, Fordham University; David Steiner, Hunter College; Kate Walsh, NCTQ; and Rachel Mazyck, Collegiate Directions.)

**September 12, 2013** Attend event *Is Our Stagnant School System Endangering our Nation’s Future Prosperity*, Brookings, Washington, D.C.

**2013-2014** Consult with Think Through Learning, Pittsburgh, PA.

**October 16-18, 2013** Attend NCTM regional conference, Baltimore, MD.

**November 20, 2013** Attend lecture by Daphne Koller, one of the founders of Coursera, at Johns Hopkins University.

**January 14, 2014** 3rd Annual Symposium on Excellence in Teaching & Learning in the Sciences, Johns Hopkins University. Talks by Sian Beilock, Sarah-Jane Leslie, and Gina Frey.

**January 15-18, 2014** American Mathematical Society Annual Meeting, various sessions on education. Baltimore, Maryland.

**February 23, 2014** Panelist at the Common Core Forum hosted by the PTA Council of Howard County.

**February 27, 2014** Speaker at the joint Franklin & Marshall, Millersville University Colloquium.

**June 6-9, 2014** Invited speaker and on a discussion panel at the Candadian Mathematical Society summer meeting in Winnipeg, Canada.

**November 23, 2014** Transforming Post-Secondary Education in Mathematics, UMBC, Baltimore, Maryland.

**January 13, 2015** Panel on Common Core and PARCC assessments at Westchester Elementary School.

**2013-2015** Reviewed the New York State math curriculum engageNY, but by the time they were ready to post it, it was way out of date.

**February 11, 2016** Attend Fordham Institute “Evaluating the Content and Quality of Next Generation Assessments”

**June 8, 2016** Attend AEI “The close-minded campus?”

**July 14, 2016** Attend Fordham Institute “Teachers Like Common Core Math. Why Don’t Parents?”

**September 7, 2016** Attend Fordham Institute, Ingenuity Project, and JHU School of Education “Why the Excellence Gap Matters for Civil Rights.”

**October 5-6, 2016** Attend Johns Hopkins University Conference “The Coleman Report at 50.”

**January 26, 2017** Attend Johns Hopkins University School of Education panel on “Do Charter Schools Advance or Imped Civil Rights?”