Duk-Soon Oh

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Employment

- **Department of Mathematics, Rutgers University** — Piscataway, NJ
  Triennial Assistant Professor — 09/2014 –
- **Center for Computation & Technology, Louisiana State University** — Baton Rouge, LA
  Postdoctoral Fellow — 10/2012 – 07/2014
- **Courant Institute of Mathematical Sciences, New York University** — New York, NY
  Assistant Research Scientist — 09/2011 – 09/2012

Education

- **Courant Institute of Mathematical Sciences, New York University** — New York, NY
  Ph.D. in Mathematics — 09/2006 – 09/2011
    - Advisor: Olof B. Widlund
    - Thesis: Domain Decomposition Methods for Raviart–Thomas Vector Fields
    - M.S. in Mathematics, 05/2009
- **Korea Advanced Institute of Science and Technology(KAIST)** — Daejon, Korea
  B.S. in Applied Mathematics and Electrical Engineering — 02/2006

Research Interests

- Finite element methods
- Domain decomposition methods
- Multigrid and multilevel methods
- Algorithms for parallel computing

Publications and Preprints

D. Oh, and W. Zhang, *A multigrid method for the Monge-Ampère equation*, in preparation

D. Oh and X. Tu, *Three-level BDDC methods for $H(\mathrm{div})$*, in preparation

S. Brenner and D. Oh, *Multigrid methods for $H(\mathrm{div})$ in three dimensions with a nonoverlapping domain decomposition smoother*, submitted

S. Brenner, D. Oh, and L.-Y. Sung, *Multigrid methods for saddle point problems: the Darcy system*, submitted to Numer. Math., in revision

D. Oh, O. Widlund, C. Dohrmann, and S. Zampini, *BDDC algorithms with deluxe scaling and adaptive selection of primal constraints for Raviart-Thomas Vector Fields*, to appear in Math. Comp., accepted

D. Oh, *A BDDC preconditioner for problems posed in H(div) with deluxe scaling*, Domain Decomposition Methods in Science and Engineering XXII, 355-361, Lect. Notes in Comput. Sci. Eng., 104, Springer (2015)

D. Oh, *An alternative coarse space method for overlapping Schwarz preconditioners for Raviart-Thomas vector fields,* Domain Decomposition Methods in Science and Engineering XX, 361-367, Lect. Notes in Comput. Sci. Eng., 91, Springer (2013)

D. Oh, *An overlapping Schwarz algorithm for Raviart-Thomas vector fields with discontinuous coefficients,* SIAM J. Numer. Anal. 51, 297–321 (2013)

D. Oh, *Domain decomposition methods for Raviart-Thomas vector fields,* Ph.D. thesis, New York University, 2011

Research Presentations

Conference Presentations

- Domain Decomposition: Past, Present and Future   New York, NY
  Courant Institute of Mathematical Sciences   *February 2017*
- The 24th International Conference on Domain Decomposition Methods   Longyearbyen, Norway
  February 2017
- SIAM Annual Meeting 2016   Boston, MA
  July 2016
- Finite Element Circus Spring 2016   College Park, MD
  University of Maryland College Park   *April 2016*
- Applied Math Days 2016   Troy, NY
  Rensselaer Polytechnic Institute   *April 2016*
- Joint Mathematics Meetings 2016   Seattle, WA
  January 2016
- AMS Fall Eastern Sectional Meeting 2015   New Brunswick, NJ
  Rutgers University   *November 2015*
- US-Korea Conference 2015   Atlanta, GA
  July 2015
- Finite Element Circus Spring 2015   Fairfax, VA
  George Mason University   *March 2015*
- The 39th SIAM Southeastern Atlantic Section Conference   Birmingham, AL
  University of Alabama at Birmingham   *March 2015*
- The 22nd International Conference on Domain Decomposition Methods   Lugano, Switzerland
  Università della Svizzera Italiana   *September 2013*
- US-Korea Conference 2013   East Rutherford, NJ
  August 2013
- SIAM Annual Meeting 2013   San Diego, CA
  July 2013

- New Frontiers in Numerical Analysis and Scientific Computing — Kent, OH
  Kent State University — *April 2013*
- 16th Copper Mountain Conference on Multigrid Methods — Copper Mountain, CO
  — *March 2013*
- Finite Element Rodeo and Circus Spring 2013 — Baton Rouge, LA
  Louisiana State University — *March 2013*
- Scientific Computing Around Louisiana 2013 — New Orleans, Louisiana
  Tulane University — *February 2013*
- Mid-Atlantic Numerical Analysis Day 2011 — Philadelphia, PA
  Temple University — *November 2011*
- The 20th International Conference on Domain Decomposition Methods — La Jolla, CA
  University of California, San Diego — *February 2011*

Invited Seminar Talks

- University of North Carolina at Charlotte — Charlotte, NC
  Department of Mathematics and Statistics — *Jan 2017*
- Pohang University of Science and Technology(POSTECH) — Pohang, Korea
  Department of Mathematics — *July 2016*
- Korea Advanced Institute of Science and Technology(KAIST) — Daejon, Korea
  Department of Mathematical Sciences — *July 2016*
- Yonsei University — Seoul, Korea
  Department of Computational Science and Engineering — *June 2016*
- Seoul National University — Seoul, Korea
  Department of Mathematical Sciences — *June 2016*
- Ulsan National Institute of Science and Technology(UNIST) — Ulsan, Korea
  Department of Mathematical Sciences — *March 2016*
- New York University — New York, NY
  Courant Institute of Mathematical Sciences — *November 2014*
- Yonsei University — Seoul, Korea
  Department of Computational Science and Engineering — *August 2014*
- Lawrence Livermore National Laboratories — Livermore, CA
  Center for Applied Scientific Computing — *October 2013*
- Korea Advanced Institute of Science and Technology(KAIST) — Daejon, Korea
  Department of Mathematical Sciences — *June 2013*
- Kyung Hee University — Yongin, Korea
  Department of Applied Mathematics — *June 2013*
- Ajou University — Suwon, Korea
  Department of Mathematics — *June 2013*
- Louisiana State University — Baton Rouge, LA
  Department of Mathematics — *October 2012*
- Korea Advanced Institute of Science and Technology(KAIST) — Daejon, Korea
  Department of Mathematical Sciences — *January 2012*
- Sandia National Laboratories — Albuquerque, NM
  Computer Science Research Institute — *August 2011*

- Oak Ridge National Laboratories   Oak Ridge, TN
  Computer Science and Mathematics Division   *April 2011*

Other Conferences and Workshops Attended

- Finite Element Circus Fall 2016   Worcester, MA
  Worcester Polytechnic Institute   *October 2016*
- Finite Element Circus Fall 2015   Dartmouth, MA
  University of Massachusetts Dartmouth   *October 2015*
- The 23rd International Conference on Domain Decomposition Methods   Jeju Island, Korea
                                            July 2015
- International Congress of Mathematicians 2014   Seoul, Korea
                                      August 2014
- International Workshop on Computational Mathematics   Seoul, Korea
  Yonsei University   *August 2014*
- Scientific Computing Around Louisiana 2014   Baton Rouge, LA
  Louisina State University   *February 2014*
- Clifford Lectures Spring 2013   New Orleans, LA
  Tulane University   *March 2013*
- John H. Barrett Lectures 2012   Knoxville, TN
  University of Tennessee, Knoxville   *May 2012*
- Finite Element Circus Spring 2012   Piscataway, NJ
  Rutgers University   *April 2012*
- Trilinos User Group Meeting 2011   Albuquerque, NM
  Sandia National Laboratories   *November 2011*
- Fast Algorithms for Scientific Computing   New York, NY
  Couraitn Institute, New York University   *September 2008*

Honors and Awards

- Academic Initiative Program Award
  Department of Mathematics, Rutgers University   *2015–*
- Junior Researchers Travel Support
  New Frontiers in Numerical Analysis and Scientific Computing   *April 2013*
- Junior Researchers Travel Support
  16th Copper Mountain Conference on Multigrid Methods   *March 2013*
- Junior Researchers Travel Award
  John H. Barrett Lectures 2012   *May 2012*
- Henry MacCracken Fellowship
  New York University Graduate School of Arts and Sciences   *2006 – 2011*
- Highest Honors in Applied Mathematics
  Korea Advanced Institute of Science and Technology   *2001*

Teaching Experience

Rutgers University

- Math 575, Numerical Solutions of PDEs (Grad course), *Instructor* *Spring 2016*
- Math 151, Calculus I for the Mathematical and Physical Sciences, *Instructor Fall 2015, Fall 2016*
- Math 373, Numerical Analysis I, *Instructor* *Fall 2015, Fall 2016, Spring 2017*
- Math 252, Elementary Differential Equations, *Instructor* *Spring 2015*
- Math 574, Numerical Analysis II (Grad course), *Instructor* *Spring 2015*
- Math 573, Numerical Analysis I (Grad course), *Instructor* *Fall 2014*

Activities and Service

- Refereed papers for the following journals:
  - International Journal of Computer Mathematics
  - Electronic Transactions on Numerical Analysis

- Refereed submissions to the following conferences:
  - The 20th International Conference on Domain Decomposition Methods

- Member of the following organizations:
  - Society for Industrial and Applied Mathematics (SIAM)
  - American Mathematical Society (AMS)

Computing Skills

- Programming Languages - C, C++, Python

- Scientific Libraries - FEniCS, Trilinos, PETSc, MPI

- Others - Maple, Matlab, LaTeX

References

References Available Upon Request