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Date and Place of Birth

September 12, 1979 - Sahagún, Cordoba; Colombia.

Education

PhD in Mathematics, March 2008.
Instituto Nacional de Matemática Pura e Aplicada-IMPA, Rio de Janeiro, Brazil.

Master of Sciences in Applied Mathematics, April 2004.
Instituto Nacional de Matemática Pura e Aplicada-IMPA, Rio de Janeiro, Brazil.

Bachelor in Mathematics, June 2001.
Universidad de Cartagena, Cartagena de Indias, Colombia.

Research

IAMCS (iamcs.tamu.edu) College Station, TX
Innovation grant (1 month summer salary) June 2009
Domain decomposition preconditioners for multiscale flow in porous media.

Texas A&M (www.math.tamu.edu) College Station, TX
Visiting Assistant Professor Fall 2008-present
Domain decomposition preconditioners for multiscale flow in porous media.
Preconditioning of the Stokes-Darcy mortar coupling.
Finite elements for random elliptic partial differential equations.
Domain decomposition preconditioners for discontinuous Galerkin discretization of elliptic problems with discontinuous coefficients.

IMPA ([www.impa.br](http://wwwimpa.br)) Rio de Janeiro, Brazil
Short Term Visiting (Mar-Aug)2008
Finite elements for random equations.

IMPA (www.impa.br) Rio de Janeiro, Brazil
Research Assistant 2004-(Feb)2008
Professor Marcus Sarkis.
Finite elements for well-reservoir coupling(2004).
Discretization and preconditioning of the Stokes-Darcy mortar coupling(2005-2008).
Finite elements for random elliptic partial differential equations(2006-2008).
Domain decomposition preconditioners for discontinuous Galerkin discretization of elliptic problems with discontinuous coefficients(2006- March 2008).

WPI (www.wpi.edu)
Research Assistant
Professor Marcus Sarkis.

Worcester, USA
Sep-Nov 2006

Finite elements for random elliptic partial differential equations.

Domain decomposition preconditioners for discontinuous Galerkin discretization of elliptic problems with discontinuous coefficients.

Teaching

Texas A&M University:

Undergraduate courses

Engineering Math I, fall 2008.

Engineering Math I (2 classes), spring 2009.

IMPA (Teaching assistantship):

Graduate courses

Complex Variable, August/November 2005.

Numerical Analysis, March/July 2005.

Functional Analysis, January/February 2005.

Linear Algebra, March/July 2005.

PDE in Finance (Probability and Stochastic Process), January/February 2006.

PDE: Linear Theory, January/February 2006.

PDE in Finance (Probability and Stochastic Process), January/February 2007.

Numerical Analysis, March/July 2007.

Computational Methods in Finance: Linear Algebra, March/June 2007.

PDE in Finance (Probability and Stochastic Process), January/February 2008.

Undergraduate courses

Introduction to Scientific Computing, January/February 2005.

Publications and Working Papers

Published

J. GALVIS AND M. SARKIS, *A Priori error estimates and FETI preconditioners for Coupling Stokes-Darcy Equations*, in *Memorias de la Escuela Internacional CIMPA-UNESCO-REALMA "Matemáticas para el modelamiento y la simulación*, Published by the Universidad del Valle, eds. Marc Lassonde and Olga Vasilieva., 2008.

J. GALVIS, *Domain decomposition analysis for heterogeneous Darcy's flow*, PhD thesis, Instituto Nacional de Matemática Pura e Aplicada, March 2008.

M. DRYJA, J. GALVIS AND M. SARKIS, *Balancing domain decomposition methods for discontinuous Galerkin discretization*, in *Domain Decomposition Methods in Science and*

Engineering XVII, Ulrich Langer et al. (eds.), vol. 60 of Lecture Notes in Computational Science and Engineering, Springer-Verlag, 2008, pp. 271-278.

M. DRYJA, J. GALVIS AND M. SARKIS, *BDDC Methods for discontinuous Galerkin discretization of elliptic problems*. J. Complexity. Vol. 23 (2007), pp. 715-739

J. GALVIS AND M. SARKIS, *Non-matching mortar discretization analysis for the coupling Stokes-Darcy equations*. Electron. Trans. Numer. Anal. Vol. 26 (2007), pp. 350-384 .

J. GALVIS AND M. SARKIS, *Balancing domain decomposition methods for mortar coupling Stokes-Darcy systems*, in Domain Decomposition Methods in Science and Engineering XVI, D. Keyes and O. B. Widlund, eds., vol. 55 of Lecture Notes in Computational Science and Engineering, Springer, 2007, pp. 373–380.

J. GALVIS AND M. SARKIS, *Inf-sup for coupling Stokes–Darcy*, In: XXV Iberian Latin American Congress in Computational Methods in Engineering, 2005, Recife. Proceedings of the XXV Iberian Latin American Congress in Computational Methods in Engineering, Recife, Brazil, 2004. Published by the Universidade Federal de Pernambuco, eds. Abimael Loula et al., 2004.

J. GALVIS, *Finite elements for well-reservoir coupling*, master’s thesis, Instituto Nacional de Matemática Pura e Aplicada, April 2004.

Submitted

J. GALVIS AND M. SARKIS, *BDD and FETI Methods for Mortar Coupling of Stokes-Darcy Systems*.

J. GALVIS AND M. SARKIS, *A priori error estimates for Wiener-Chaos finite element approximations for the Darcy’s equation in random porous media*.

M. DRYJA, J. GALVIS AND M. SARKIS, *Neumann-Neumann methods for a DG discretization of elliptic problems with discontinuous coefficients on geometrically nonconforming substructures*.

J. GALVIS AND Y. EFENDIEV, *Domain decomposition preconditioners for multiscale flows in high contrast media*.

In preparation

J. GALVIS AND M. SARKIS, *Regularity results for the ordinary product stochastic pressure equation*.

J. GALVIS AND Y. EFENDIEV, *Domain decomposition preconditioners for multiscale media*

with high channels.

Other publications

J. GALVIS *Introdução aos métodos de decomposição de domínio*. Lecture notes for a mini-course in the 27^o Colóquio Brasileiro de Matemática IMPA, Rio de Janeiro, 27 a 31 de julho de 2009.

Presentations

(Coming) Minicourse: Introdução aos métodos de decomposição de domínio. 27^o Colóquio Brasileiro de Matemática IMPA, Rio de Janeiro, 27 a 31 de julho de 2009.

Wiener-Chaos finite element approximations for the Darcy's equation in random porous media. Finite Element Rodeo, Institute for Computational Engineering and Sciences The University of Texas at Austin. Feb. 27 & 28, 2009.

Domain Decomposition Analysis for Heterogeneous Darcy's Flow. Numerical Analysis Seminar at Department of Mathematics Texas A&M University, September 2008.

Domain Decomposition Analysis for Heterogeneous Darcy's Flow. Prêmio Odelar Linhares Apresentações das Teses Indicadas SBMAC 2008. July 07-08, 2008. Honorable Mention.

Preconditioners for DG discretization of elliptic problems on geometrically non-conforming substructures at. Computational and Mathematical Challenges in Waves, Wells & Weather, IMPA Rio de Janeiro, March 24-28, 2008.

Neumann-Neumann methods for DG discretization of elliptic problems on geometrically non-conforming substructures. X Workshop em Equações Diferenciais Parciais-Impa, August 2007, Rio de Janeiro, Brazil.

Domain Decomposition Method for discontinuous Galerkin discretization of elliptic problems with discontinuous coefficients. ESCUELA CIMPA-UNESCO-REALMA-COLOMBIA Matemáticas para modelamiento y simulación, June 2007, Cali, Colombia.

Discretization analysis for the coupling of free fluid flow with porous media flow. ESCUELA CIMPA-UNESCO-REALMA-COLOMBIA Matemáticas para modelamiento y simulación, June 2007, Cali, Colombia.

Discretization analysis for the coupling of free fluid flow with porous media flow. PDE Seminar at Worcester Polytechnic Institute (WPI), November 2006.

Discretization of Stokes/Darcy Coupling. Workshop: Discontinuous Galerkin and Multi-scale Finite Element Methods for Partial Differential Equations - Theory and Applications. Universidade Federal de Santa Catarina, February 2006, Santa Catarina, Brazil.

Mortar Discretization For Coupling Stokes Darcy, discrete inf-sup conditions and error

analysis. IX Workshop em Equações Diferenciais Parciais-Impa, July 2005, Rio de Janeiro, Brazil.

Inf-sup for coupling Stokes-Darcy. XXV Latin American Congress on Computational Methods in Engineering, CILAMCE XXV, November, 2004, Recife, Brazil.

Finite Elements for well-reservoir coupling. Rio Oil and Gas Expo and Conference 2004. October 4-7, 2004. Rio de Janeiro, Brazil.

Finite Elements for well-reservoir Coupling. The SPE 2004 South American & Caribbean Student Presentation and Paper Contest, June 17 - 18, 2004 at Vitória - ES (Brazil).

Inf-sup condition for the coupling of Stokes and Darcy equations. 1st LNCC Meeting on Computational Modeling, August, 2004, Petrópolis, Brazil.

Awards

- Honorable Mention: Odelar Linares award, Brazil, 2008.
- ANP Fellowship ((sep)2002-(feb)2004)
- CNPQ Fellowship (2004-2006)
- PEC-PG (CAPES) Fellowship (2006-2007)
- Mención de Honor por rendimiento académico 2001, University of Cartagena.
- Joven talento para la investigación de la comisión regional para la ciencia y tecnología de la costa Caribe.

Skills

- Languages: Spanish (native) and advanced Portuguese and English.
- Computer Skills: Matlab, C++, Maple, Mathematica.