

## Gabriel Coutinho

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CONTACT INFORMATION	Assistant Professor Dep. de Ciência da Computação Federal University of Minas Gerais Belo Horizonte, MG, Brazil	<i>Phone:</i> +55 (31) 3409 5860 <i>E-mail:</i> gabriel@dcc.ufmg.br
RESEARCH INTERESTS	Spectral graph theory, quantum information theory, association schemes, semidefinite programming, equiangular lines.	
EDUCATION	<b>University of Waterloo</b> , Waterloo, ON, Canada  PhD in Combinatorics and Optimization, August 2014. <ul style="list-style-type: none"><li>• Thesis Title: <i>Quantum State Transfer in Graphs</i></li><li>• Advisor: Professor Chris Godsil</li><li>• Area of Study: Algebraic Graph Theory</li></ul> <b>Universidade Federal de Pernambuco</b> , Recife, PE, Brazil  Masters of Mathematics, July 2010 <ul style="list-style-type: none"><li>• Thesis Title: <i>Tutte Polynomial and Two Generalizations</i></li><li>• Advisor: Professor Manoel Lemos</li><li>• Area of Study: Graph Theory</li></ul> Bachelor of Mathematics, December 2008, receiving the award “Láurea Universitária”.	
PUBLICATIONS	<ul style="list-style-type: none"><li>[1] G. Coutinho, C. Godsil, K. Guo, F. Vanhove. Perfect state transfer on distance-regular graphs and association schemes. <i>Linear Algebra and its Applications</i>, 478 (2015): 108-130.</li><li>[2] G. Coutinho, C. Godsil. Perfect state transfer in products and covers of graphs. <i>Linear and Multilinear Algebra</i> 64, no. 2 (2016): 235-246.</li><li>[3] G. Coutinho, H. Liu. No Laplacian perfect state transfer in trees. <i>SIAM Journal on Discrete Mathematics</i> 29, no. 4 (2015): 2179-2188.</li><li>[4] G. Coutinho. Spectrally extremal vertices, strong cospectrality, and state transfer. <i>Electronic Journal of Combinatorics</i> 23, no. 1 (2016): #P1.46.</li><li>[5] G. Coutinho, C. Godsil, M. Shirazi, H. Zhan. Equiangular Lines and Covers of the Complete Graph. <i>Linear Algebra and its Applications</i> 488 (2016): 264-283.</li></ul>	
INVITED TALKS IN CONFERENCES	<ul style="list-style-type: none"><li>[1] G. Coutinho. Lines and Covers of Complete Graphs. In <i>Systems of Lines: Applications of Algebraic Combinatorics</i>, Worcester Polytechnic Institute, Worcester, MA, USA, August 10-14, 2015.</li><li>[2] G. Coutinho. Perfect state transfer in trees. In: <i>Summer Combo</i>, Clarkson University, Potsdam, NY, USA, July 18, 2014.</li><li>[3] G. Coutinho. New examples of perfect state transfer. In: <i>Algebraic Combinatorics: Spectral Graph Theory, Erdős-Ko-Rado Theorems and Quantum Information Theory: A Conference to celebrate the work of Chris Godsil</i>, Waterloo, ON, Canada, June 23-27, 2014.</li></ul>	

- CONFERENCE TALKS
- [4] G. Coutinho. Graph spectra and quantum walks. In: *CanADAM*, University of Saskatchewan, Saskatoon, SK, Canada, June 01-04, 2015.
  - [5] G. Coutinho. (No) Perfect state transfer in trees. In: *Exact Solvability and Symmetry Avatars: Conference held on the occasion of Luc Vinet's 60th birthday*, CRM, Montreal, QC, Canada, August 25-29, 2014.
  - [6] G. Coutinho. Recent developments in quantum state transfer. In: *22nd Ontario Combinatorics Workshop*, York University, Toronto, ON, Canada, May 16-17, 2014.
    - Awarded the Peter Rodney Memorial Book Prize for best student talk.
- INVITED TALKS IN SEMINARS
- [7] G. Coutinho. Connections between complex lines and distance-regular graphs. In: *Tutte Colloquium*. University of Waterloo, Waterloo, Canada, July, 2015.
  - [8] G. Coutinho. Orthogonal polynomials and quantum walks. In: *Miniworkshop: Quantum Dynamics on Graphs*. University College of London, London, UK, July, 2015.
  - [9] G. Coutinho. Combinatorics of Quantum State Transfer. In: *Discrete Mathematics Seminar*. University of Delaware, Newark, DE, USA, November, 2014.
  - [10] G. Coutinho. Algebraic graph theory. In: *Grad Seminar series*. University of Waterloo, Waterloo, Canada, November, 2013.
- OTHER PUBLICATIONS
- [1] G. Coutinho. *Quantum State Transfer in Graphs*. PhD Thesis, University of Waterloo, Waterloo, ON, Canada, 2014.
  - [2] G. Coutinho. *O Polinômio de Tutte e duas generalizações*. Masters thesis, Universidade Federal de Pernambuco, Recife, PE, Brazil, 2010.
- TEACHING EXPERIENCE
- University of Waterloo**, Waterloo, ON, Canada.
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| Instructor of MATH 135: Algebra for Math Honours     | <b>Fall 2014</b>                                   |
| Instructor of MATH 115: Linear algebra for engineers | <b>Fall 2012 and Fall 2013</b>                     |
| <i>Teaching Assistant</i>                            | <b>Several terms from Fall 2010 to Spring 2014</b> |
- Universidade Federal de Pernambuco**, Recife, PE, Brazil.
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| Instructor of Calculus 3: Vectorial calculus, ODEs and series | <b>2009 and 2010</b> |
| Instructor of Introduction to Mathematics                     | <b>2009</b>          |
- MEETING ATTENDANCE
- Conferences**
- *AMS Spring Central Sectional Meeting*. Ames, IA, USA, April 26-28, 2013.
  - *EuroComb'11*. Budapest, Hungary, August 29-September 2, 2011.
- PROFESSIONAL SERVICE
- Referee Service**
- Discrete Mathematics.
  - Journal of Combinatorics Theory Series B.
  - Electronic Journal of Linear Algebra.
  - Quantum Information and Computing.
  - Combinatorica.
  - Electronic Journal of Combinatorics.

REFERENCES  
AVAILABLE TO  
CONTACT

- Dr. Christopher Godsil** (e-mail: [cgodsil@uwaterloo.ca](mailto:cgodsil@uwaterloo.ca); phone: +1 (519) 888 4567 x35593)
- Professor, Dep. of Combinatorics and Optimization, University of Waterloo, ON, Canada.
  - ★ *Dr. Godsil was my PhD supervisor.*
- Dr. Alfred Menezes** (e-mail: [ajmeneze@uwaterloo.ca](mailto:ajmeneze@uwaterloo.ca); phone: +1 (519) 888 4567 x36934)
- Professor, Dep. of Combinatorics and Optimization, University of Waterloo, ON, Canada.
  - ★ *Dr. Menezes is available to speak about my teaching experience.*
- Dr. Christino Tamon** (e-mail: [tino@clarkson.edu](mailto:tino@clarkson.edu); phone: +1 (315) 268 6521)
- Associate Professor, Department of Computer Science, Clarkson University, NY, USA.