

T. Alexander Quinn, PhD

Imperial College London

University of Oxford

Somerville College

PERSONAL INFORMATION

Full Name: Thomas Alexander Quinn

Current Posts: Research Associate, Imperial College London
Academic Visitor, University of Oxford
Fulford Junior Research Fellow in Medical Sciences, Somerville College

Work Address: National Heart and Lung Institute, Imperial College London
Heart Science Centre, Harefield UB9 6JH, UK
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Date of Birth: March 27, 1978

Place of Birth: Toronto, Ontario, Canada

Citizenship: Canadian

RESEARCH INTERESTS

My main interests are in the interaction between cardiac mechanics and electrophysiology. My aim is to build an internationally established group, pursuing an integrated multi-scale and multi-modal approach by combining engineering-based experimental techniques with computational modeling for insight at various levels of functional and structural complexity, to study the importance of pathological changes in mechano-electric coupling in cardiac disease and explore novel therapeutic interventions to normalize their effects. This will build on my current postdoctoral training focused on basic experimental and computational research studies of cardiac mechano-electric coupling at the organ, tissue, and cellular levels (funded by an internationally competitive Postdoctoral Research Fellowship from the Engineering and Physical Sciences Research Council of the United Kingdom and a Project Grant from the British Heart Foundation on which I am the Principal Investigator) and my graduate work involving translational and clinical studies of biventricular pacing optimization for the treatment of acute cardiac dysfunction in patients and whole animal models (which ultimately lead to an NIH R01-funded clinical trial).

ACADEMIC POSITIONS

Through my graduate and postdoctoral training I have strived to build a foundation in both clinical and basic science research, along with the skill to translate between the two, while also developing the ability to cross traditional boundaries between fields and levels of investigation, allowing me to pursue an integrative approach that will be essential in my future career as a scientist striving to improve clinical therapy.

2011 - current **Research Associate**
Cardiac Biophysics and Systems Biology Group, Prof Peter Kohl
National Heart and Lung Institute, Imperial College London, London, UK

2011 - current **Academic Visitor**
Computational Biology Group, Dr Blanca Rodriguez
Department of Computer Science, University of Oxford, Oxford, UK

2010 - current **Fulford Junior Research Fellow in Medical Sciences**
Somerville College
University of Oxford, Oxford, UK

- 2008 - 2010** **EPSRC Postdoctoral Research Fellow**
 Cardiac Mechano-Electric Feedback Group, Prof Peter Kohl
 Department of Physiology, Anatomy and Genetics, University of Oxford, Oxford, UK
 Computational Biology Group, Dr Blanca Rodriguez
 Department of Computer Science, University of Oxford, Oxford, UK
- 2001 - 2008** **Graduate Research Assistant**
 Cardiovascular Surgery Research Laboratory, Prof Henry M Spotnitz
 Department of Surgery, Columbia University Medical Center, New York, NY
 Cardiac Biomechanics Group, Prof Jeffrey W Holmes
 Department of Biomedical Engineering, Columbia University, New York, NY
- 1999 - 2001** **Research Assistant**
 McGill University Medical Clinic, Prof Harry L Goldsmith
 Montreal General Hospital Research Institute, Montreal, QC

EDUCATION

Together with integrative research training, my education has involved multidisciplinary study, including a strong foundation in biomedical, mathematical, and physical sciences and extensive exposure to clinical research, supporting the ability to cross traditional boundaries between clinical and basic science and translate findings between different fields and levels of investigation.

- 2003 - 2008** **Doctor of Philosophy, Columbia University, New York, NY**
 Biomedical Engineering, Major in Biomechanics (With Distinction, top 10%)
 Thesis: *Optimization of Biventricular Pacing for the Treatment of Acute Ventricular Dysfunction*
- 2003 - 2006** **Master of Philosophy, Columbia University, New York, NY**
 Biomedical Engineering, Major in Biomechanics
- 2001 - 2003** **Master of Science, Columbia University, New York, NY**
 Biomedical Engineering, Major in Biomechanics
- 1996 - 2000** **Bachelor of Science, McGill University, Montreal, QC**
 Joint Major in Physiology and Physics

TEACHING

My teaching experience has involved assisting professors at Columbia University with undergraduate instruction, including weekly tutorials, preparing supporting material, setting questions for and marking assignments, tests, and exams, and running twice weekly laboratory modules. At the same time, outside of the university I was an Instructor of Cardiovascular Physiology at the Health Science Academy of the Arthur Ashe Institute for Urban Health, a program offering academic science enrichment to talented high school students from the public and parochial sectors. At Imperial College London I have been lecturing for the Pharmacology and Translational Medical Science program, teaching cardiac physiology and the pharmacological treatment of arrhythmias and heart failure.

- 2012 - current** **Lecturer - Drugs and the Heart**
 Faculty of Medicine, Imperial College London, London, UK
- 2005** **Instructor - Cardiovascular Physiology**
 Arthur Ashe Health Sciences Academy, New York, NY
- 2003 - 2005** **Teaching Assistant - Laboratory IV: Ultrasound Module**
 Department of Biomedical Engineering, Columbia University, New York, NY
- 2001** **Teaching Assistant - Quantitative Physiology II: Organ Systems**
 Department of Biomedical Engineering, Columbia University, New York, NY
- 2001** **Teaching Assistant - Quantitative Physiology I: Cells and Molecules**
 Department of Biomedical Engineering, Columbia University, New York, NY

SUPERVISION

Part of my motivation for pursuing an academic career is the opportunity, through teaching and research, to train future scientists. I gained significant training experience at Columbia University by supervising medical student research projects, and am delighted that the work of three of my students resulted in first-author publications for them in peer-reviewed journals (Albright, Booth, and Kenny - see the publication list below). At the University of Oxford, I am fortunate to be gaining further student supervision experience in the Department of Computer Science by co-supervising and assessing PhD student work and co-supervising preliminary student projects (for which one of my students has won honors - see Dutta below). I was also a Senior Doctoral Training Advisor in the Department of Physiology, Anatomy and Genetics, responsible for coordination and integration of departmental PhD student training and interaction. Furthermore, at Imperial College London, under the grant that I received from the British Heart Foundation, I supervised a postdoctoral fellow to assist with that project and previously hosted an undergraduate student for a related summer project.

Postdoctoral Researchers:

2010 - 2011 **Honghua Jin**
National Heart and Lung Institute, Imperial College London, London, UK
Department of Physiology, Anatomy and Genetics, University of Oxford, Oxford, UK
Project: *Global vs Regional Contribution to Mechanically-Induced Changes in Heart Rhythm*

Graduate Students:

2010 - 2011 **Senior Doctoral Training Advisor**
Department of Physiology, Anatomy and Genetics, University of Oxford, Oxford, UK

2010 - current **Sara Dutta (PhD Supervision)**
Department of Computer Science, University of Oxford, Oxford, UK
Project: *Investigating the Role of Mechano-Electric Feedback and Ischaemia in Modulating Pro-arrhythmic Risk*
Honors: *First Place, PhD Student Poster Competition, Cardiovascular Technology Network Symposium, Imperial College London*

2010 - current **John Walmsley (PhD Assessment)**
Department of Computer Science, University of Oxford, Oxford, UK
Project: *Novel Methodologies for the Incorporation of Heterogeneity and Variability in Cardiac Electrophysiology Modelling and Simulation*

2009 - current **Philip Gemmell (PhD Supervision)**
Department of Computer Science, University of Oxford, Oxford, UK
Project: *Ionic Basis for Variability in Repolarisation and its Implications in Pathological Response*

2010 **Sara Dutta (Doctoral Training Centre Project Supervision)**
Department of Computer Science, University of Oxford, Oxford, UK
Project: *Simulating the Effects of Ischaemia-Induced Spatial Heterogeneities on Optical Mapping Recording*

2010 **Melissa Maczka (Doctoral Training Centre Project Supervision)**
Department of Computer Science, University of Oxford, Oxford, UK
Project: *Removing Motion Artifacts from Optical Mapping Images of the Heart*

2009 **Philip Gemmell (Doctoral Training Centre Project Supervision)**
Department of Computer Science, University of Oxford, Oxford, UK
Project: *Modelling the Effects of Axial Stretch on Calcium Sparking Rate in Cardiomyocytes*

Medical Students:

2007 **Justin Booth**
Department of Surgery, Columbia University, New York, NY
Project: *Assessment of Cardiac Output Measurement by Arterial Pressure Waveform Analysis*

2009 - current	Global versus Regional Contribution to Mechanically-Induced Changes in Heart Rhythm Principal Investigator Project Grant, British Heart Foundation (BHF), UK	£110,548
2008 - current	Integrated Experimental and Computational Research Tools for the Study of Acute Ischaemic Effects on Cardiac Mechano-Electrical Interactions Principal Investigator Engineering and Physical Sciences Research Council (EPSRC), UK	£298,228
2007 - 2008	Real-Time Hemodynamic Analysis for Biventricular Pacing Optimization after Cardiac Surgery Principal Investigator Department of Surgery Startup Grants, Columbia University, New York, NY	\$5,179
2006 - 2007	Optimized Biventricular Pacing for the Treatment of Acute Left Ventricular Dysfunction Principal Investigator Department of Surgery Startup Grants, Columbia University, New York, NY	\$5,535
2005 - 2006	Automated Biventricular Pacing and Real-Time Analysis after Cardiac Surgery Principal Investigator Department of Surgery Startup Grants, Columbia University, New York, NY	\$5,848
2004 - 2005	Radio Frequency Identification to Prevent Retained Foreign Bodies After Surgery Principal Investigator Department of Surgery Startup Grants, Columbia University, New York, NY	\$5,203

OTHER FUNDING

Travel to international conferences to present my postdoctoral research has been supported by travel grants from the Physiological Society.

2011	Physiological Society Travel Grant	£700
2010	Physiological Society Travel Grant	£700
2009	Physiological Society Travel Grant	£700

PATENTS & INVENTION REPORTS

My graduate research has led to a patent for biventricular pacing optimization technology, currently being executed by Medtronic, Inc., as well as various related invention reports.

2010	All-in-one, Single-User, Customized Computer-Based System for Rapid and Real-Time Hemodynamic Analysis for Biventricular and Conventional Pacemaker Optimization Columbia University Invention Report 2794 Inventors: Henry M Spotnitz, T Alexander Quinn, Santos E Cabreriza
2008	Computerized Optimization of Biventricular Pacing Columbia University Invention Report 2480 Inventors: Henry M Spotnitz, T Alexander Quinn, Santos E Cabreriza
2007	Methods and System for Measuring QRS Duration Columbia University Invention Report 2239 Inventors: Henry M Spotnitz, T Alexander Quinn, Matthew E Spotnitz Catherine M Albright, Marc E Richmond, Santos E Cabreriza, Jose M Dizon

- 2006** **Methods for Optimization of Biventricular Pacing, Devices, and Systems Therefore**
PCT/US06/012430
Biventricular Pacing in Heart Block (US 60/713,237)
Epicardial Pacing Array and Computerized Selector Switch (US 60/669,680)
Methods and Systems for Optimization of Biventricular Pacing (US 60/668,015)
Inventors: Henry M Spotnitz, T Alexander Quinn, George Berberian, Santos E Cabreriza

ACADEMIC SERVICE & CONTRIBUTION

I am a firm believer in the importance of service to one's community and take every opportunity to volunteer myself for organizational and developmental activities, as well as reviewing and editorial work and society membership. Currently, I am excited to be the primary coordinator and a lead developer of a reporting standard for cardiac electrophysiology experimentation, Minimum Information about a Cardiac Electrophysiology Experiment (MICEE), involving 60 investigators at over 40 institutions, as well as a principal organizer of the next International Workshop on Cardiac Mechano-Electric Feedback and Arrhythmias.

Standards Development:

- 2011 - current** **Primary Coordinator and Lead Developer, Cardiac Electrophysiology Experimentation Reporting Standard (60 Investigators, 44 Institutions)**
Minimum Information about a Cardiac Electrophysiology Experiment (MICEE)

Meeting Organization:

- 2011 - current** **Organizing Committee, International Workshop**
6th International Workshop on Cardiac Mechano-Electric Feedback and Arrhythmias
- 2011 - current** **Organizer, Internal Seminar Series**
Heart Science Centre, National Heart and Lung Institute, Imperial College London
- 2010** **Organizing Committee, International Workshop (>60 attendees)**
50 Years of Cardiac Cell Modelling
- 2010** **Organizer, Computational Biology Reading Group**
Experiments: How far can we trust them, Models: How far have we thrown them?

Committee Membership:

- 2008 - 2010** **Postdoctoral Representative, Departmental Committee**
Department of Physiology, Anatomy and Genetics, University of Oxford

Grant & Regulatory Activity:

- 2005 - 2007** **Preparation and Submission, FDA Investigational Device Exemption**
Department of Surgery, Columbia University Medical Center, New York, NY
- 2005 - 2006** **Preparation and Submission, American Heart Association Grant-In-Aid Grant**
Department of Surgery, Columbia University Medical Center, New York, NY
- 2003 - 2007** **Preparation, Submission, and Renewal, NIH R01 and R21 Grants**
Department of Surgery, Columbia University Medical Center, New York, NY
- 2003 - 2007** **Preparation and Submission, Various Project Grants (Children's Heart Foundation, Empire Clinical Research Investigator Program, Foundation for the Advancement of Cardiac Therapies, Medtronic, St Jude Medical)**
Department of Surgery, Columbia University Medical Center, New York, NY

REVIEWING & EDITORIAL WORK

Review Editor:

Frontiers in Cardiac Electrophysiology

Journal Reviewer:

American Journal of Physiology
ASAIO Journal
Biomechanics and Modeling in Mechanobiology
Circulation
Journal of Cardiovascular Pharmacology
Medical and Biological Engineering and Computing
Physics in Medicine and Biology
Physiological Measurement
Progress in Biophysics and Molecular Biology

Ad Hoc Reviewing:

Virtual Physiological Human 2012 Conference Abstracts
Cardiac Mechano-Electric Feedback and Arrhythmias, 2nd Edition, Oxford University Press
Virtual Physiological Human 2010 Conference Abstracts

PROFESSIONAL SOCIETY MEMBERSHIPS

American Heart Association
Council on Basic Cardiovascular Science, Council on Clinical Cardiology
The American Physiological Society
Cardiovascular Section, Translational Physiology Group
Biomedical Engineering Society
Heart Rhythm Society
International Society for Cardiovascular Translational Research
New York Academy of Sciences
UK Physiological Society

COLLABORATORS

I maintain a well-developed network of international collaborators, allowing me to broaden the scope of my research.

Christian Boulin, Avi Epstein - European Molecular Biology Laboratory (Heidelberg), Germany
Thomas Brand, Kar Lai Poon - National Heart and Lung Institute, Imperial College London, UK
Gil Bub, Rebecca Burton - Department of Physiology, Anatomy & Genetics, University of Oxford, UK
Bin Cheng, Alan Weinberg - Mailman School of Public Health, Columbia University, NY
Ruben Coronel - Academic Medical Center, University of Amsterdam, The Netherlands
Jose Dizon - Department of Medicine, Columbia University, NY
Gentaro Iribe - Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, Japan
Flavio Fenton - Department of Biomedical Sciences, Cornell University, NY
Darrel Francis - National Heart and Lung Institute, Imperial College London, UK
Vicente Grau - Department of Engineering, University of Oxford, UK
Leslie Loew - Center for Cell Analysis and Modeling, University of Connecticut Health Center, CT
Jean-Philippe Couderc - Department of Cardiology, University of Rochester Medical Center, NY
Fred Sachs - Department of Physiology and Biophysics, SUNY at Buffalo, NY
Henry Spotnitz, Santos Cabreriza - Department of Surgery, Columbia University, NY
András Varró, István Baczkó - Department of Pharmacology and Pharmacotherapy, University of Szeged, Hungary
Rai Winslow, Stephen Granite - Institute for Computational Medicine, Johns Hopkins University, Baltimore, MD

RESEARCH EXPERTISE

As my work involves both clinical and basic science research, as well as translation between the two, I utilize a combination of multi-scale and multi-modal engineering-based experimental methods and advanced mathematical modeling approaches, such that the necessary set of skills is extensive and varied, including clinical, experimental, and computational techniques.

Clinical:

- Cardiac surgery and electrophysiology research methods
- Novel technologies for cardiac electrophysiology and surgery
- Perioperative hemodynamic, echocardiographic, and electrocardiographic functional analysis

Experimental:

- Pathophysiological and surgical whole animal models
- Isolated heart, cardiac tissue, and cardiac cell sample and pathophysiological model preparation
- Intraventricular balloon implementation
- Global and regional tissue strain application
- Functional fluorescent optical mapping
- Micro- and macroscopic photonic and optical recording techniques
- Matlab- and LabVIEW-based instrument control and data analysis

Computational:

- Cardiac cellular, tissue, and whole heart electrophysiological and mechanical modeling
- Matlab, COR, CellML, and Chaste model development

INVITED TALKS (SELECTION)

I enjoy engaging with the international research community and have given invited talks at numerous institutions relating to my research.

Department of Biomedical Engineering, Dalhousie University. Cardiac mechano-electric coupling: intrinsic electro-mechanical regulation in the heart. Halifax, NS, April 27, 2012.

Department of Biomedical Engineering, University of Virginia. Cardiac mechano-electric coupling: intrinsic electro-mechanical regulation in the heart. Charlottesville, VA, April 17, 2012.

Department of Biomedical Engineering, Rochester Institute of Technology, NY. Cardiac mechano-electric coupling: intrinsic electro-mechanical regulation in the heart. Rochester, NY, April 5, 2012.

Department of Biomedical Engineering, University of Minnesota. Cardiac mechano-electric coupling and arrhythmias. Minneapolis, MN, April 2, 2012.

Department of Biomedical Engineering, Yale University. Cardiac mechano-electric coupling: intrinsic electro-mechanical regulation in the heart. New Haven, CT, March 22, 2012.

Department of Biomedical Engineering, Worcester Polytechnic Institute. Cardiac mechano-electric coupling: intrinsic electro-mechanical regulation in the heart. Worcester, MA, March 1, 2012.

Department of Cardiology, University of Rochester Medical Center. Optimization of biventricular pacing for the treatment of acute ventricular dysfunction. Rochester, NY, June 29, 2011.

Department of Biomedical Engineering, University of Rochester Medical Center. Cardiac mechano-electric coupling and arrhythmias. Rochester, NY, June 27, 2011.

BBSRC UK-Japan Collaboration Meeting: Cardiac Electro-Mechanical Function: Cell-Organ Cross-Talk Revealed via Integration of Experiments and Models, University of Oxford. Regional impact-induced arrhythmia in isolated rabbit heart visualised by optical mapping. Oxford, UK, September 6-7, 2010.

5th International Workshop on Cardiac Mechano-Electric Coupling and Arrhythmias, University of Oxford. Optical mapping of mechano-electric coupling effects in the whole heart. Oxford, UK, September 1-4, 2010.

Department of Computer Science, University of Oxford. A man of many hats: cardiac electro-mechanics from benchside to bedside and back. Oxford, UK, June 2, 2010.

Scientific Computing and Imaging Institute, University of Utah. Multi-scale and multi-modal investigation of cardiac mechano-electrical coupling. Salt Lake City, UT, April 1, 2010.

Rabbit Action Potential Models Workshop, Universidad Politécnica de Valencia. Effects of hyperkalemia on rabbit ventricular action potential models. Valencia, Spain, November 26-27, 2009.

Academic Medical Centre. Integrated cardiac models for investigation of mechano-electrical feedback. Amsterdam, The Netherlands. October 29, 2009.

36th International Congress of Physiological Sciences Satellite Symposium: Cardiac Electro-Mechanical Function: Cell-Organ Cross-Talk Revealed via Integration of Experiments and Models. Integrated cardiac models for investigation of mechano-electric feedback. Naoshima, Japan, August 2-4, 2009.

RIKEN. Integrated cardiac investigation into mechano-electrical interactions: macro to micro. Virtual Physiological Human Joint Workshop, Advanced Center for Computing and Communication. Wako, Japan, July 31, 2009.

preDICT Modelling Workshop. Rabbit-specific, ventricular myocyte action potential model refinement. Oxford, UK, July 31, 2009.

Food and Drug Administration. Optimized Biventricular Pacing for the Treatment of Acute Ventricular Dysfunction. July 9, 2008.

ORIGINAL PUBLICATIONS

My research has contributed to 31 published journal papers, as well 15 pending (2 conditionally accepted, 8 in preparation, 5 in revision) journal papers, 6 conference papers, 2 book chapters, and 58 conference abstracts.

JOURNAL PAPERS:

Pending

15. **Quinn TA**, Kohl P. The mechanical-clock in cardiac pacemaker cells: adjusting the membrane/calcium-clock to diastolic filling. *Prog Biophys Mol Biol*; Conditionally Accepted.
14. Burton R, **Quinn TA***, Schneider JE, Bishop MJ, Hales PW, Bollensdorff C, Robinson MD, Wong KCK, Morris J, Kohl P. The third coronary artery in humans and rabbit. *Europace*; Conditionally Accepted
*Corresponding author
13. **Quinn TA**, Jin H, Lee P, Kohl P. Mechanically-induced arrhythmias in the whole heart. *Circ Res*; In Preparation.
12. **Quinn TA**, Kohl P, Bub G. High speed life science imaging using temporal pixel multiplexing. *Optics Express*; In Preparation.
11. **Quinn TA**, Cabreriza SE, Holmes JW, Spotnitz HM. Design of experiments and response surface methodology for intelligent biventricular pacing optimization. *Ann Biomed Eng*; In Preparation.
10. Gemmell P, Burrage K, Rodriguez B, **Quinn TA**. Quantifying the ionic basis for physiological variability in cardiac cellular electrophysiology. *Biophys J*; In Preparation.
9. Dutta S, Bishop MJ, Rodriguez B, **Quinn TA**. Investigating the effects of ischaemia-induced spatial heterogeneities on optical mapping recordings. *Heart Rhythm*; In Preparation.
8. International Working Group on Quantitative Pacemaker Optimization. Optimization with confidence: Introducing methodology for active design of quantitative optimization protocols for cardiac resynchronization therapy *Circulation*; In Preparation.
7. Wang A, Cabreriza SE, **Quinn TA**, Richmond ME, Cheng B, Spotnitz HM. Regional and global strain changes during biventricular pacing in a porcine model of acute left ventricular volume overload. *Am J Physiol Heart Circ Physiol*; In Preparation.

6. Martinez MN, Cabreriza SE, Richmond ME, Ramsook RR, **Quinn TA**, Weinberg AD, Mosca RS, Spotnitz HM. Cariporide and allopurinol preserve ventricular function after ischemia-reperfusion injury. *Am J Physiol Heart Circ Physiol*; In Preparation.
5. **Quinn TA**, Cabreriza SE, Blumenthal BF, Printz BF, Altmann K, Glickstein JS, Snyder MS, Mosca RS, Quaegebeur JM, Holmes JW, Spotnitz HM. Observed wall motion differs between transthoracic and transesophageal echocardiography. *J Am Soc Echocardiogr*; In Revision.
4. Rubinstein BJ, Wang DY, Cabreriza SE, Cheng B, Aponte-Patel L, Murata A, Rusanov A, Richmond ME, **Quinn TA**, Spotnitz HM. Effects of temporary cardiac resynchronization therapy after chest closure during cardiac surgery. A substudy of the Biventricular Pacing After Cardiac Surgery (BiPACS) trial. *J Thorac Cardiovasc Surg*; In Revision.
3. Wang DY, Kelly LA, Richmond ME, **Quinn TA**, Cheng B, Cabreriza SE, Naka Y, Stewart AS, Smith CR, Spotnitz HM. Optimized temporary biventricular pacing after off-pump coronary artery bypass grafting in patients with reduced left ventricular function. *J Surg Res*; In Revision.
2. Cheng B, Shillingford JN, Wang DY, Cabreriza SE, Richmond ME, Rusanov A, **Quinn TA**, Spotnitz HM. Efficiency of intraoperative optimization of cardiac resynchronization. *Ann Thorac Surg*; In Revision.
1. Spotnitz MD, Wang DY, Cabreriza SE, Rusanov A, Richmond ME, Cheng B, **Quinn TA**, Bedrosian LN, Spotnitz HM. Does ejection fraction predict response to cardiac resynchronization therapy after cardiac surgery? *ASAIO J*; In Revision.

Published

31. Johnson CK, Sahar RL, Rusanov A, Wang DY, Cheng B, Gendy MS, **Quinn TA**, Cabreriza SE, Spotnitz HM. Clinical validation of a real-time data processing system for cardiac output and arterial pressure measurement during intraoperative biventricular pacing optimization. *ASAIO J*. 2012; In Press.
30. Rusanov A, Wang DY, Cabreriza SE, Bedrosian LN, Karl SR, Richmond ME, **Quinn TA**, Cheng B, Spotnitz HM. Effect of atrioventricular conduction prolongation on optimization of paced atrioventricular delay for biventricular pacing after cardiac surgery. *J Cardiothorac Vasc Anesth*. 2012; 26:2009-16.
29. **Quinn TA**, Kohl P. Systems Biology of the heart: hype or hope? *Ann N Y Acad Sci*. 2011; 1245:40-3.
28. **Quinn TA**, Granite S, Allesie MA, Antzelevitch C, Bollensdorff C, Bub G, Burton RAB, Cerbai E, Chen PS, Delmar M, DiFrancesco D, Earm YE, Efimov IR, Egger M, Entcheva E, Fink M, Fischmeister R, Franz MR, Garry A, Giles WR, Hannes T, Harding DE, Hunter PJ, Iribe G, Jalife J, Johnson CR, Kass RS, Kodama I, Koren G, Lord P, Markhasin VS, Matsuoka S, McCulloch AD, Mirams GR, Morley GE, Nattel S, Noble D, Olesen SP, Panfilov AV, Trayanova NA, Ravens U, Richard S, Rosenbaum DS, Rudy Y, Sachs F, Sachse FB, Saint DA, Schotten U, Solovyova O, Taggart P, Tung L, Varró A, Volders PGA, Wang K, Weiss JN, Wettwer E, White E, Wilders R, Winslow RL, Kohl P. Minimum Information about a Cardiac Electrophysiology Experiment (MICEE): standardised reporting for model reproducibility, interoperability, and data sharing. *Prog Biophys Mol Biol*. 2011; 107:4-10.
27. Burton R, **Quinn TA***, Kohl P. Rediscovering the third coronary artery. *Eur Heart J*. 2011; 32:1435-37.
*Corresponding author
26. Lee P, Bollensdorff C, **Quinn TA**, Wuskell JP, Loew LM, Kohl P. Single-sensor system for spatially-resolved, continuous and multi-parametric optical mapping of cardiac tissue. *Heart Rhythm*. 2011; 8:1482-91.
25. Wang DY, Richmond ME, **Quinn TA**, Mirani AJ, Rusanov A, Yalamanchi V, Weinberg AD, Cabreriza SE, Spotnitz HM. Optimized temporary biventricular pacing acutely improves intraoperative cardiac output after weaning from cardiopulmonary bypass: a sub-study of a randomized clinical trial. *J Thorac Cardiovasc Surg*. 2011; 141:1002-8.
24. Spotnitz ME, Wang DY, **Quinn TA**, Cheng B, Richmond ME, Rusanov A, Johnston T, Cheng B, Cabreriza SE, Spotnitz HM. Hemodynamic stability during biventricular pacing after cardiopulmonary bypass. *J Cardiothorac Vasc Anesth*. 2011; 25:238-42.
23. Kohl P, Crampin E, **Quinn TA**, Noble D. Systems biology: an approach. *Clin Pharmacol Ther*. 2010; 88:25-33.

22. Spotnitz ME, Richmond ME, **Quinn TA**, Cabreriza SE, Wang DY, Albright CM, Weinberg AD, Dizon JM, Spotnitz HM. Relation of QRS shortening to cardiac output during temporary resynchronization therapy after cardiac surgery. *ASAIO J.* 2010; 56:434-40.
21. Dizon JM, **Quinn TA**, Cabreriza SE, Wang D, Spotnitz HM, Hickey K, Garan H. Real-time stroke volume measurements for the optimization of biventricular pacing parameters. *Europace.* 2010; 12:1270-4.
20. Gray RG, Cabreriza SE, **Quinn TA**, Weinberg AD, Spotnitz HM. Feasibility of *in vivo* pressure measurement using a pressure-tip catheter *via* transventricular puncture. *ASAIO J.* 2010; 56:194-9.
19. George E, Cabreriza SE, **Quinn TA**, Rusanov A, Gerrah R, Broyles J, Weinberg AD, Spotnitz HM. Validation of automated monitoring of cardiac output for biventricular pacing optimization. *ASAIO J.* 2010; 56:265-9.
18. **Quinn TA**, Cabreriza SE, Richmond ME, Weinberg AD, Holmes JW, Spotnitz HM. Simultaneous variation of ventricular pacing site and timing with biventricular pacing during acute ventricular failure improves function by interventricular assist. *Am J Physiol Heart Circ Physiol.* 2009; 297:H2220-6.
17. Booth JH, **Quinn TA**, Richmond ME, Cabreriza SE, Weinberg AD, Spotnitz HM. Cardiac output measurement by arterial pressure waveform analysis during optimization of biventricular pacing after cardiac surgery. *ASAIO J.* 2009; 55:587-91.
16. Richmond ME, Cabreriza SE, Van Batavia JP, **Quinn TA**, Kanter JP, Weinberg AD, Mosca RS, Quaegebeur JM, Spotnitz HM. Direction of pre-operative shunting affects ventricular mechanics after tetralogy of Fallot repair. *Circulation.* 2008; 118:2338-44.
15. Spotnitz HM, **Quinn TA**. The surgeon's role in resynchronization therapy. *US Cardiology.* 2008; 5:70-1.
14. Albright CM, **Quinn TA**, Berberian G, Cabreriza SE, Garofalo CA, Weinberg AD, Dizon JM, Spotnitz HM. Measurement of QRS duration for biventricular pacing optimization. *ASAIO J.* 2008; 54:335-40.
13. Berberian G, **Quinn TA**, Cabreriza SE, Kenny JE, Garofalo CA, Weinberg AD, Spotnitz HM. Left ventricular pacing site and timing optimization during biventricular pacing using a multi-electrode patch. *J Thorac Cardiovasc Surg.* 2007; 134:574-8.
12. Berberian G, Cabreriza SE, **Quinn TA**, Garofalo CA, Spotnitz HM. Left ventricular pacing site-timing optimization during biventricular pacing using a multi-electrode patch. *Ann Thorac Surg.* 2006; 82:2292-4.
11. **Quinn TA**, Berberian G, Cabreriza SE, Maskin LJ, Weinberg AD, Holmes JW, Spotnitz HM. Effects of sequential biventricular pacing during acute right ventricular pressure overload. *Am J Physiol Heart Circ Physiol.* 2006; 291:H2380-7.
10. Garofalo CA, Cabreriza SE, **Quinn TA**, Weinberg AD, Printz BF, Hsu DT, Quaegebeur JM, Mosca RS, Spotnitz HM. Ventricular diastolic properties predict short-term postoperative risk and duration of pleural effusions after the Fontan operation. *Circulation.* 2006; 114:I-56-61.
9. Kenny JE, Berberian G, Rabkin DG, Cabreriza SE, **Quinn TA**, Curtis LJ, Spotnitz HM. Ethanol induction of complete heart block in swine. *J Surg Res.* 2006; 132:142-6.
8. Berberian G, **Quinn TA**, Cabreriza SE, Garofalo CA, Barrios DM, Weinberg AD, Spotnitz HM. Load dependence of cardiac output in biventricular pacing: left ventricular volume overload in pigs. *J Thorac Cardiovasc Surg.* 2006; 131:666-70.
7. Berberian G, **Quinn TA**, Kanter JP, Curtis LJ, Cabreriza SE, Weinberg AD, Spotnitz HM. Optimized biventricular pacing in atrioventricular block after cardiac surgery. *Ann Thorac Surg.* 2005; 80:870-5.
6. Berberian G, Kanter JP, **Quinn TA**, Spotnitz HM. Optimized perioperative biventricular pacing in setting of right heart failure. *Europace.* 2005; 7:385-7.
5. Berberian G, **Quinn TA**, Vigilance DW, Park DY, Cabreriza SE, Curtis LJ, Spotnitz HM. Validation study of PulseCO system for continuous cardiac output measurement. *ASAIO J.* 2005; 51:37-40.
4. Prasso JE, Berberian G, Cabreriza SE, **Quinn TA**, Curtis LJ, Rabkin DG, Weinberg AD, Spotnitz HM. Validation of mean arterial pressure as an indicator of acute changes in cardiac output. *ASAIO J.* 2005; 51:22-5.

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