

# ROBERT STILLMAN OAKES

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## EDUCATION

**Bachelor of Science, Biomedical Engineering** 2006  
Emphasis: Biomechanics/Physiology

## AWARDS AND FELLOWSHIPS

Research Fellowship, University of Utah School of Medicine. May 2007 – August 2007  
Eric N. Prystowsky Clinical Research Award. Heart Rhythm Society. May 2008

## WORK EXPERIENCE

**Senior Research Engineer, Atrial Fibrillation Program** April 2007 – December 2008  
*Atrial Fibrillation Program - Division of Cardiology, Internal Medicine. University of Utah School of Medicine*  
Responsible for all operations of the clinical and basic laboratory research programs for the Atrial Fibrillation Program at the University of Utah School Of Medicine.

**Research Coordinator/Chief Laboratory and Surgical Technician** July 2003 – August 2008  
*Division of Pediatric Nephrology and Hypertension, Pediatrics. University of Utah School of Medicine*  
Administrative oversight of all clinical and laboratory programs including IRB, finances, and personnel.  
Designed and implemented study protocols in collaboration with division physicians.

## RELATED EXPERIENCE

**Contributing Editor/Executive Committee Member** November 2004 – June 2007  
*Utah's Health: An Annual Review. Governor Scott M. Matheson Center for Health Studies, University of Utah*  
Responsible for production of journal and oversight of website content. Senior Editor for infectious disease data section, co-editor for Pediatrics data section.

## SELECTED PUBLICATIONS

Oakes, RS. *Professional and Scientific Writing with Open Source Tools*. rapidBOOKS, LP. Ontario, Canada. (In Production)

Oakes RS, Badger TJ, Kholmovski EG, Segerson NM, DiBella EVR, Fish E, Blauer JJE, Akoum N, Daccarett M, Windfelder J, McGann CJ, Parker D, MacLeod RS, Marrouche NF. Detection and Quantification of Low Voltage Left Atrial Tissue Using Delayed Enhancement MRI in Patients with Atrial Fibrillation. *Circulation*. 2009 March 23. PMID: 19307477.

Oakes RS, Macleod RS, McGann CJ, Di Bella EVR, Kholmovski EG, Marrouche NF. MRI in the EP Lab: A Novel Method to Facilitate Treatment of Atrial Fibrillation. *Siemens Magnetrom FLASH*. December 2007. *Invited Review*.

Oakes RS, Kirkham JK, Nelson RD, Siegler RL. Duration of Oliguria and Anuria as Predictors of Chronic Renal Related Sequelae in Post-Diarrheal Hemolytic Uremic Syndrome. *Pediatric Nephrology*. 2008 Aug; 23(8):1303-8. Epub 2008 May 9. PMID:18465151.

Oakes RS, Kirkham JK, Nelson RD, Siegler RL. Duration of Oliguria and Anuria as Predictors of Chronic Renal Related Sequelae in Post-Diarrheal Hemolytic Uremic Syndrome. *Pediatric Nephrology*. 2008 Aug; 23(8):1303-8. Epub 2008 May 9. PMID:18465151.

## PATENTS AND PATENTS PENDING

Marrouche NF, MacLeod RS, Kholmovski E, McGann C, Oakes RS, Blauer JJE, Badger T, Burgon N. Therapeutic Outcome Assessment for Atrial Fibrillation. Application Serial Number: 12\344,169. Docket Number: 076950-0068. Status: Pending.

Marrouche NF, MacLeod RS, Kholmovski E, McGann C, Oakes RS, Blauer JJE, Badger T, Burgon N. Prediction of Therapeutic Success for Atrial Fibrillation. Application Serial Number: 12\344,164. Docket Number: 076950-0066. Status: Pending.

## LANGUAGES

English – Native Language  
Spanish – Speak fluently with high read/write proficiency

## REFERENCES

**Christopher McGann**. Professor of Radiology. University of Utah School of Medicine.  
E-Mail: [Chris.McGann@hsc.utah.edu](mailto:Chris.McGann@hsc.utah.edu). Phone: (801) 231-0791. (Preferred Contact Method: E-Mail)

**Edward V.R. DiBella**. Professor of Radiology. University of Utah School of Medicine  
E-Mail: [Ed@ucair.med.utah.edu](mailto:Ed@ucair.med.utah.edu). Phone: (801) 585-5543. Fax: (801) 585-3592.

## PUBLICATIONS

## BOOKS

Oakes, RS. *Professional and Scientific Writing with Open Source Tools*. rapidBOOKS, Ltd. Ontario, Canada. (In Production, May 2010)

## PEER REVIEWED JOURNAL ARTICLES

Oakes RS, Badger TJ, Kholmovski EG, Segerson NM, DiBella EVR, Fish E, Blauer JJE, Akoum N, Daccarett M, Windfelder J, McGann CJ, Parker D, MacLeod RS, Marrouche NF. Detection and Quantification of Low Voltage Left Atrial Tissue Using Delayed Enhancement MRI in Patients with Atrial Fibrillation. *Circulation*. 2009 March 23. PMID: 19307477.

Badger TJ, Oakes RS, Daccarett M, Burgon NS, Segerson NS, Akoum N, Fish EN, Rao SN, Blauer JJE, Kholmovski EG, Vijayakumar S, DiBella EVR, MacLeod RS, Marrouche NF. Temporal left atrial lesion formation following ablation of atrial fibrillation: Lessons learned from delayed enhancement MRI. *Heart Rhythm*. 2009 Feb;6(2):161-8. PMID: 19187904.

MacLeod RS, Kholmovski EK, DiBella EVR, Oakes RS, Blauer JE, Fish EN, Vijayakumar S, Daccarett M, Segerson NM, Marrouche NF. Integration of MRI in Evaluation and Ablation of Atrial Fibrillation. *Computers in Cardiology*. 2008.

McGann CJ, Kholmovski EG, Oakes RS, Blauer JJE, Daccarett M, Segerson N, Airey KJ, Akoum N, Fish E, Badger TJ, DiBella EVR, Parker D, MacLeod RM, Marrouche NF. Extent of left atrial wall injury evaluated by magnetic resonance imaging after pulmonary vein antrum isolation predicts procedural response. *Journal of the American College of Cardiology*. 2008 Oct 7; 52(15):1263-71. PMID: 18926331.

Oakes RS, Kirkham JK, Nelson RD, Siegler RL. Duration of Oliguria and Anuria as Predictors of Chronic Renal Related Sequelae in Post-Diarrheal Hemolytic Uremic Syndrome. *Pediatric Nephrology*. 2008 Aug; 23(8):1303-8. Epub 2008 May 9. PMID:18465151.

Lou-Meda RM, Williams CG, Gilstrap JN, Oakes RS, Pavia AT, Siegler RL. Prognostic Significance of Microalbuminuria in Post-Diarrheal Hemolytic Uremic Syndrome. *Pediatric Nephrology*. 2006 Sep 12; PMID: 16967283.

Oakes RS, Siegler, RL, McReynolds MA, Pysher T, Pavia AT. Predictors of Fatality in Post-Diarrheal (D+) Hemolytic Uremic Syndrome (HUS). *Pediatrics*. 2006 May; 117(5):1656-1662. PMID: 16651320.

Davis S, Oakes RS, Weeks C, Anderson L, Jones A. Issues in the Creation of Specialized Medical and Surgical Units. *Utah's Health: An Annual Review*. Volume 10(1), 2005 Edition.

## INVITED REVIEW ARTICLES

Daccarett M, Oakes RS, Segerson NM, Windfelder J, Marrouche NF. Real-time Imaging in Left Atrial Mapping and Ablation. *Future Cardiology*. *Invited Review*.

Oakes RS, Macleod RS, McGann CJ, Di Bella EVR, Kholmovski EG, Marrouche NF. MRI in the EP Lab: A Novel Method to Facilitate Treatment of Atrial Fibrillation. *Siemens Magnetrom FLASH*. December 2007. *Invited Review*.

Siegler, RL Oakes RS. Hemolytic Uremic Syndrome: Pathogenesis, Treatment and Outcome. *Current Opinion in Pediatrics*. 2005 April; 17(2) 200-204. *Invited Review*. PMID: 16651320.

## ABSTRACT AND POSTER PRESENTATIONS

Badger TJ, Oakes RS, Shabaan A, Akoum AW, Segerson NM, Fish EN, Rao S, Burgon N, Adjei-Poku Y, Kholmovski E, Vijayakumar S, DiBella EVR, MacLeod RS and Marrouche NF. The relationship between pulmonary vein antrum scarring following atrial fibrillation ablation and procedural success: Does Pulmonary Vein Isolation Matter? American Heart Association: Scientific Sessions. November 8-12, 2008. New Orleans. *Oral Presentation*.

Badger TJ, Oakes RS, Fish EN, Segerson NM, Akoum N, Burgon NS, Rao S, Shabaan A, DiBella EVR, MacLeod RS and Marrouche NF. Identification of Gap Lesions Following Failed Atrial Fibrillation Ablation: Using Three-Dimensional Delayed Enhancement MRI to Guide Re-ablation Procedure. American Heart Association: Scientific Sessions. November 8-12, 2008. New Orleans.

Akoum NW, Oakes RS, Burgon NS, Fish EN, Windfelder J, Rao S, Badger TJ, DiBella EVR, MacLeod RS and Marrouche NF. Relationship between left atrial structural remodeling and the use of anti-arrhythmic drugs in patients with atrial fibrillation. American Heart Association: Scientific Sessions. November 8-12, 2008. New Orleans.

Kuppahally S, Oakes RS, Fish EN, Kholmovski E, Vijayakumar S, DiBella EVR, MacLeod RS, Litwin SE and Marrouche NF. Left atrial strain in patients with atrial fibrillation: Effects of left atrial fibrosis and volume. American Heart Association: Scientific Sessions. November 8-12, 2008. New Orleans.

Oakes RS, Badger TJ, Kholmovski E, Segerson N, Daccarett M, Akoum N, Di Bella EVR, MacLeod RS, McGann CJ, Marrouche NF. New MRI method to predict successful radiofrequency ablation in the treatment of atrial fibrillation. European Society of Cardiology Congress - 2008. August 30 – September 3, 2008. Munich, Germany. Division of Cardiology, Internal Medicine, University of Utah School of Medicine. *Poster Presentation*.

Oakes RS, Badger TJ, Burgon N, Segerson N, Daccarett M, Akoum N, Kholmovski E, Di Bella EVR, MacLeod RS, Marrouche NF. Left atrial fibrosis impacts lesion formation during catheter ablation of atrial fibrillation. European Society of Cardiology Congress - 2008. August 30 – September 3, 2008. Munich, Germany. Division of Cardiology, Internal Medicine, University of Utah School of Medicine. *Oral Presentation.*

Badger TJ, Oakes RS, Burgon N, Segerson N, Akoum N, Daccarett M, Kholmovski E, Di Bella EVR, MacLeod RS, Marrouche NF. Use of contrast enhanced magnetic resonance imaging to identify myocardial healing following ablative treatment for atrial fibrillation. European Society of Cardiology Congress - 2008. August 30 – September 3, 2008. Munich, Germany. Division of Cardiology, Internal Medicine, University of Utah School of Medicine. *Poster Presentation.*

Badger TJ, Oakes RS, Segerson N, Daccarett M, Akoum N, Burgon N, Kholmovski E, Di Bella EVR, MacLeod RS, Marrouche NF. Using 3D delayed-enhancement MRI to identify gap lesions following failed pulmonary vein isolation to help guide repeat radiofrequency ablation in atrial fibrillation patients. European Society of Cardiology Congress - 2008. August 30 – September 3, 2008. Munich, Germany. Division of Cardiology, Internal Medicine, University of Utah School of Medicine. *Oral Presentation – Top Scoring Abstract.*

Badger TJ, Oakes RS, Fish E, Segerson N, Daccarett M, Akoum N, Kholmovski E, Di Bella, MacLeod RS, Marrouche NF. Using delayed-enhancement MRI to detect esophageal tissue damage following radiofrequency ablation. European Society of Cardiology Congress - 2008. August 30 – September 3, 2008. Munich, Germany. Division of Cardiology, Internal Medicine, University of Utah School of Medicine. *Oral Presentation.*

Oakes RS, Badger TJ, Fish EN, Daccarett M, McGann CJ, Blauer JE, DiBella EVR, Kholmovski EG, MacLeod RS, Marrouche NF. “Use of Contrast Enhanced Magnetic Resonance Imaging to Identify Myocardial Healing Following Ablation for Atrial Fibrillation.” Heart Rhythm Society – Scientific Sessions. May 14-17, 2008. San Francisco, California. Division of Cardiology, Internal Medicine. University of Utah School of Medicine. *Oral Presentation.*

Daccarett M, Oakes RS, Blauer JJE, Burgon N, Badger TJ, Kholmovski EG, DiBella EVR, MacLeod RS, Marrouche NF. “Quantitative Measurement and Three Dimensional Visualization of Scar Formation Following Pulmonary Vein Isolation for Atrial Fibrillation.” Heart Rhythm Society – Scientific Sessions. May 14-17, 2008. San Francisco, California. Division of Cardiology, Internal Medicine. University of Utah School of Medicine. *Oral Presentation.* Winner: Eric N. Prystowsky Clinical Research Award.

Blauer JJE, Oakes RS, Burgon NM, McGann CJ, Badger TJ, Vijayakumar S, Kholmovski EG, DiBella EVR, Marrouche NF, MacLeod RS. “MRI Assessment and Quantification of Left Atrial Lesions Following Pulmonary Vein Isolation for Atrial Fibrillation.” Heart Rhythm Society – Scientific Sessions. May 14-17, 2008. San Francisco, California. Division of Cardiology, Internal Medicine. University of Utah School of Medicine. *Poster Presentation.*

Oakes RS, Segerson NM, Badger TJ, Blauer JJE, Sessions J, Kholmovski EG, Vijayakumar S, DiBella EVR, MacLeod RS, Marrouche NF. “Left atrial fibrosis impacts lesion formation during catheter ablation of atrial fibrillation.” Heart Rhythm Society – Scientific Sessions. May 14-17, 2008. San Francisco, California. Division of Cardiology, Internal Medicine. University of Utah School of Medicine. *Poster Presentation.*

Akoum N, Oakes RS, Badger TJ, Fish EN, Blauer JJE, McGann CJ, Shaaban A, Rao S, Sessions J, DiBella EVR, Kholmovski EG, Vijayakumar S, MacLeod RS, Marrouche NF. “Correlation between Left Atrial Structural remodeling with Persistence and Recurrence in Patients with Atrial Fibrillation.” Heart Rhythm Society – Scientific Sessions. May 14-17, 2008. San Francisco, California. Division of Cardiology, Internal Medicine. University of Utah School of Medicine. *Oral Presentation.*

Oakes RS, Kholmovski E, Badger TJ, Burgon NM, DiBella EVR, MacLeod RS, Marrouche NF. “A Novel Method for the Visualization of Fibrotic Low Voltage Tissue Utilizing Delayed Enhancement Magnetic Resonance Imaging in the Treatment of Atrial Fibrillation.” International Society for Magnetic Resonance in Medicine (ISMRM), 2008. Toronto, Ontario, Canada. Division of Cardiology, Internal Medicine. University of Utah School of Medicine.

Badger TJ, Oakes RS, Fish NE, Blauer JJE, McGann CJ, MacLeod RS, Marrouche, NF. “New MRI Method to Detect Abnormal Electrical Tissue Using Delayed Enhancement MRI: Correlation with Electroanatomic Voltage Maps.” American College of Cardiology, 2008. March, 2008. Chicago, Illinois. Division of Cardiology, Internal Medicine. University of Utah School of Medicine.

Badger TJ, Oakes RS, Fish EN, Blauer JJE, Daccarett M, Segerson N, Akoum N, McGann CJ, MacLeod RS, Marrouche NF. “New MRI Method to Predict Successful Radiofrequency Ablation in the Treatment of Atrial Fibrillation.” American College of Cardiology, 2008. March, 2008. Chicago, Illinois. Division of Cardiology, Internal Medicine. University of Utah School of Medicine.

Oakes RS, Badger TJ, Fish E, Blauer JE, Kholmovski E, McGann C, Marrouche NF, MacLeod FS. “Visualization of Fibrotic Low Voltage Tissue Utilizing Delayed Enhancement MRI in the Left Atrium.” 3<sup>rd</sup> Annual Mountain West Biomedical Engineering Conference, 2007. September 21, 2007. Park City, Utah. Bioengineering Department, University of Utah.

McGann C, Kholmovsky E, Oakes RS, Di Bella E, MacLeod RS, Fish E, Daccarrett M, Segerson N, Marrouche NF. “Magnetic Resonance Imaging Detects Chronic Left Atrial Wall Injury Post Ablation of Atrial Fibrillation.” American Heart Association, 2007. Orlando, Florida. Division of Cardiology, Internal Medicine. University of Utah School of Medicine.

Oakes, RS, Pavia AT, Siegler RL. “Predictors of Fatality in the Hemolytic Uremic Syndrome.” American Society of Nephrology, 2004. Denver, Colorado. Dept of Pediatrics, Divisions of Nephrology and Infectious Disease. University of Utah School of Medicine.

Pearson D, Oakes RS, Pysker T, Siegler RL. “Location and severity of tissue damage in individuals with post diarrheal hemolytic uremic syndrome.” American Society of Nephrology, 2004. Denver, Colorado. Department of Pediatrics, Division of Nephrology and Pathology, University of Utah School of Medicine.

Kirkham J, Oakes RS, Pavia At, Siegler RL. "Duration of Oliguria and Anuria as Predictors of Chronic Renal Damage in Post-Diarrheal (D+) Hemolytic of Uremic Syndrome (HUS)." American Society of Nephrology, 2004. Denver, Colorado. Department of Pediatrics, Divisions of Nephrology and Pathology, University of Utah School of Medicine.

Lou-Meda RM, Williams CG, Pavia AT, Gilstrap JN, Oakes RS, Siegler RL. Testing for Microalbuminuria (MA) Increases the Sensitivity for Predicting Renal Related Sequelae in those with Post-Diarrheal (D+) Hemolytic Uremic Syndrome (HUS). Denver, Colorado. American Society of Nephrology, 2004. Department of Pediatrics, Divisions of Nephrology and Pathology, University of Utah School of Medicine.

#### PATENTS AND PATENTS PENDING

Marrouche NF, MacLeod RS, Kholmovski E, McGann C, Blauer JJE, Badger T, Oakes RS, Burgon N. Therapeutic Outcome Assessment for Atrial Fibrillation. Application Serial Number: 12\344,169. Docket Number: 076950-0068. Status: Pending.

Marrouche NF, MacLeod RS, Kholmovski E, McGann C, Blauer JJE, Badger T, Oakes RS, Burgon N. Prediction of Therapeutic Success for Atrial Fibrillation. Application Serial Number: 12\344,164. Docket Number: 076950-0066. Status: Pending.

#### CERTIFICATIONS

**Pediatric Advanced Life Support (PALS).** American Heart Association/American Academy of Pediatrics. Completed: July 27, 2004 at Primary Children's Medical Center. Renewed: July, 26 2007. *Valid through July 2010.*

**Human Participant Protections Education for Research Teams.** National Institutes of Health (NIH). Completed July 12, 2004 at University of Utah Medical Center. *Certification has no expiration date.*

#### REFERENCES

**Richard L. Siegler.** Professor of Pediatrics, Emeritus. University of Utah School of Medicine.  
E-Mail: [RSiegler@aol.com](mailto:RSiegler@aol.com). Phone: (530) 601-1965

**Nassir F. Marrouche.** Professor of Internal Medicine, Cardiology. University of Utah School of Medicine  
E-Mail: [Nassir.Marrouche@hsc.utah.edu](mailto:Nassir.Marrouche@hsc.utah.edu). Phone: (801) 581-2572.

**Christopher McGann.** Professor of Radiology. University of Utah School of Medicine.  
E-Mail: [Chris.McGann@hsc.utah.edu](mailto:Chris.McGann@hsc.utah.edu). Phone: (801) 231-0791. (Preferred Contact Method: E-Mail)

**Edward V.R. DiBella.** Professor of Radiology. University of Utah School of Medicine  
E-Mail: [Ed@uair.med.utah.edu](mailto:Ed@uair.med.utah.edu). Phone: (801) 585-5543. Fax: (801) 585-3592.

## VOLUNTEER EXPERIENCE

The Sharing Place

**Volunteer**

**September 2007 – December 2009**

Help in facilitating grief sessions for children who have lost an immediate family member.

Primary Children's Medical Center

**Volunteer, Parent Resource Center**

**May 2006 – August 2007**

Help parents to find information and resources about their child's illness, help coordinate access to community services during after hours.

Center for Humanitarian outreach and intercultural Exchange (CHOICE)

**Member, Scientific Advisory Board**

**November 2004 – December 2009**

Design of integrated information system to manage core operations including communication with local humanitarian aid directors, donor and foundation follow-up and community outreach activities. Creation and automation of rural health monitoring system.

Compassionate Care Group, University of Utah

**Vice President, Communications**

**August 2003 – March 2004**

Instituted yearly lecture series. Responsible for Media Coordination and Programming of Events. Noted Speaker: Patch Adams. Gesundheit Foundation for Children's Health Care. February 12, 2004.

Franklin Elementary School

**Youth Mentor**

**August 2002 – March 2003**

Tutored Spanish speaking children in reading and writing basics. Helped to organize special events as needed.

Church of Jesus Christ of Latter Day Saints

**Full Time Service Volunteer/Proselytizing Missionary**

**January 2000 – January 2002**

## MEMBERSHIPS

American Heart Association (AHA) – Student Member

American Academy of Pediatrics (AAP) – Student Member

American College of Physicians – Student Member

Biomedical Engineering Society – Member