



25th International Workshop on Magnetic Resonance Angiography

“MRA at the Crossroads: Accelerating into Bayesian & Metabolism”

August 20 - 23, 2013

Hunter College, Manhattan, New York, USA



2013 Program

Cover Art: D. Schwen

http://commons.wikimedia.org/wiki/File:NYC_wideangle_south_from_Top_of_the_Rock.jpg

Welcome

Dear Colleagues:

Welcome to the 25th annual meeting of the International MR Angiography Workshop here in the heart of the big Apple, our nickname for New York City.

We are excited about the record number of submissions and attendee registrations which reflects the excitement and enthusiasm for MRA. The scientific sessions have been organized to promote free open discussion and scientific exchanges and we are hoping that all of the delegates can be asking questions and sharing ideas.

Following the scientific program each day, the evening programs are arranged for interaction and networking, including an Organ Recital at the Church of the Blessed Sacrament and dinner at Sambuca Restaurant (Tuesday), dinner at the Central Park Boathouse (Wednesday), dinner cruise to Statue of Liberty (Thursday) and pre-theatre dinner at the Hunter Faculty Dining Hall (Friday).

Sincerely yours,



Martin Prince, MD, PhD
Co-Chair, MRA 2013



Yi Wang, PhD
Co-Chair MRA 2013



Tim Leiner, MD, PhD
President, MRA Workgroup

2013 Workshop Organization

Executive Committee

Yi Wang, PhD, Chair, Weill Cornell Medical College

Martin Prince, MD/PhD, Chair, Weill Cornell Medical College

Tim Leiner, MD/PhD, President, MRA Workgroup, Utrecht University Medical Center

Winfried Willinek, MD, Past President, MRA Workgroup, University of Bonn

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Martin Prince, MD/PhD, Weill Cornell Medical College

Leon Axel, MD/PhD, NYU

Mitchell Cooper, MS, Cornell University/Weill Cornell Medical College

Rebecca Cramer, BS, Weill Cornell Medical College

Zahi Fayad, PhD, Mount Sinai Hospital

Elizabeth Hecht, MD, Columbia

Thanh Nguyen, PhD, Weill Cornell Medical College

Pascal Spincemaille, PhD, Weill Cornell Medical College

Steven Wolff, MD/PhD, Columbia

MR Angio Club Organization

President

Tim Leiner MD/PhD, Utrecht University Medical Center

Executive Committee

Georg Bongartz, Kevin DeMarco, Philippe Douek, Charles Dumoulin, Franz Ebner, Richard Frayne, John Huston, Gerhard Laub, Tim Leiner, Debiao Li, James Meaney; Hitoshi Miki, Charles Mistretta, James Potchen, Martin Prince, Steve Riederer, Brian Rutt, Kazuhiko Sadamoto, James Siebert, Arlene Sierra, Winfried Willinek, Graham Wright

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Conference Managers

Jannette Wallace, Johanne Langford, Debbie Lilly, Joanne Laser

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Kevin Henley

Exhibitors and Acknowledgments _____

<i>Corporate Gold Exhibitors</i>	
	<p>Bayer HealthCare's Radiology & Interventional unit is a global leader in developing and manufacturing contrast agents used in X-ray, computed tomography (CT) and magnetic resonance imaging (MRI), as well as injection systems for diagnostic and therapeutic medical procedures in CT, MRI and cardiovascular and peripheral vascular disease.</p> <p>http://ri.bayer.com/ www.bayer.com</p>
	<p>Bracco Imaging S.p.A, is one of the World's leading companies in the diagnostic imaging business. Headquartered in Milan, Italy, Bracco Imaging develops, manufactures and markets diagnostic imaging agents and solutions that meet medical needs and facilitate clinical solutions.</p> <p>www.braccoimaging.com</p>
	<p>GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.</p> <p>www3.gehealthcare.com/en/Products/Categories/Magnetic_Resonance_Imaging www3.gehealthcare.com/en/Products/Categories/Magnetic_Resonance_Imaging/Vascular_Imaging</p>
	<p>Philips is one of the world's leading healthcare technology companies. We are committed to understanding patients' and caregivers' needs and improving the experience of care.</p> <p>People focused. Healthcare simplified. www.philips.com/healthcare</p>
	<p>Siemens Healthcare, Magnetic Resonance offers innovative and comprehensive imaging systems and applications, ranging in field strength from 0.35 up to 3 Tesla and powered by Tim 4G technology and Dot.</p> <p>www.siemens.com/cmr</p>

Corporate Additional Exhibitors

	<p>Guerbet is the only pharmaceutical group dedicated to medical imaging on the world market. It has a comprehensive range of X-ray and MRI contrast agents to enhance diagnosis and overall patient care. To discover new products and ensure its future development, Guerbet devotes significant resources to R&D every year: 210 staff and a sum equivalent to 11% of its sales.</p> <p>www.guerbet.com</p>
	<p>Medis medical imaging systems is a leading provider of innovative software solutions that enable clinicians, technicians and researchers to accurately quantify medical images. Medis products are focused on the cardiovascular imaging market and cover the modalities MRI, CT, X-ray angiography and intravascular ultrasound. Since its foundation in 1989, Medis has introduced a range of quantification software solutions that have proven their value in clinical practice and research. QAngio® XA and QMass® MR are Medis' flagship products. QAngio® XA incorporates the module QCA-CMS™, which is widely considered as a best-in-class solution for the quantification of coronary vessels. QMass® MR is used by clinicians and core labs worldwide to help assess cardiac function. Medis' corporate headquarters are located in Leiden, the Netherlands, and the company has a subsidiary in Raleigh, NC, USA.</p> <p>http://www.medis.nl/</p>
	<p>TopSpins Inc. is dedicated to helping MR imaging centers implement safe, accurate, state-of-the-art contrast enhanced MR Angiography and dynamic contrast-enhanced MR imaging studies for the benefit of their patients.</p> <p>www.topspins.com</p>

Endorsements

	<p>The International Society for Magnetic Resonance in Medicine is a nonprofit professional association dedicated to promoting communication, research, development and application of magnetic resonance techniques in medicine and biology. The Society presents annual meetings and sponsors other major educational and scientific workshops. We are accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.</p> <p>www.ismrm.org</p>
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Grateful Acknowledgments To

 <p>National Institute of Biomedical Imaging and Bioengineering</p>	<p>The mission of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) is to improve health by leading the development and accelerating the application of biomedical technologies. The Institute is committed to integrating the physical and engineering sciences with the life sciences to advance basic research and medical care</p> <p>http://www.nibib.nih.gov/home</p>
 <p>HUNTER The City University of New York</p>  <p>Center for Study of Gene Structure and Function</p>	<p>The primary mission of the Department of Physics and Astronomy is to provide an outstanding education for our students. Our curriculum serves undergraduate liberal arts students who seek, by the study of Physics, to acquire critical thinking skills and develop the understanding and problem-solving abilities which are increasingly needed in our technological society.</p> <p>http://www.hunter.cuny.edu/physics</p> <p>The Hunter College RCMI Program (Hunter RCMI Program), formerly the Center for Study of Gene Structure and Function (Gene Center), is a consortium of researchers from the Hunter College departments of biology, chemistry, psychology, physics, anthropology, and urban public health, as well as from the Hunter-Bellvue School of Nursing. The Hunter RCMI Program is a key partner in the Clinical and Translational Science Center, an enterprise that also includes the Weill Cornell Medical College, Memorial Sloan-Kettering Cancer Center, the Hospital for Special Surgery and the Hunter College School of Nursing.</p> <p>http://genecenter.hunter.cuny.edu/</p>
 <p>Weill Cornell Medical College</p>	<p>Weill Cornell Radiology offers a full array of diagnostic radiology examinations and interventional procedures at several convenient locations: NewYork-Presbyterian Hospital/Weill Cornell Medical Center located at 70th Street and York Avenue, and at off-site imaging centers. At each state-of-the-art facility, an expert and caring team of radiologists, technologists, nurses, and support staff provides the latest in radiological services.</p> <p>http://www.cornellradiology.com/index.html</p>
 <p>robarts RESEARCH</p>	<p>Robarts Research Institute harnesses the power of cell biology, genomics and advanced imaging technologies to investigate disorders of the neurological, cardiovascular and immune systems. It is a research Institute within the Schulich School of Medicine & Dentistry at The University of Western Ontario.</p> <p>www.robarts.ca</p>
 <p>Western</p>	<p>Founded in 1878, The University of Western Ontario is one of Canada's oldest universities and today is committed to providing the best student experience among Canada's leading research-intensive universities. A vibrant centre of learning located in London, Ontario, Western is home to more than 30,000 students and attracts external support of over \$200 million annually for research projects.</p> <p>www.uwo.ca</p>

Conference Venue Information

Venue

The conference is being held in the 7th floor of the West Building of Hunter College located at East 68th street and Lexington Avenue in New York City. Directions to the campus can be found at: <http://www.hunter.cuny.edu/abouthunter/maps/68th-street-main-campus>. A map of the campus is shown below. A map of the 7th floor is shown on the next page.

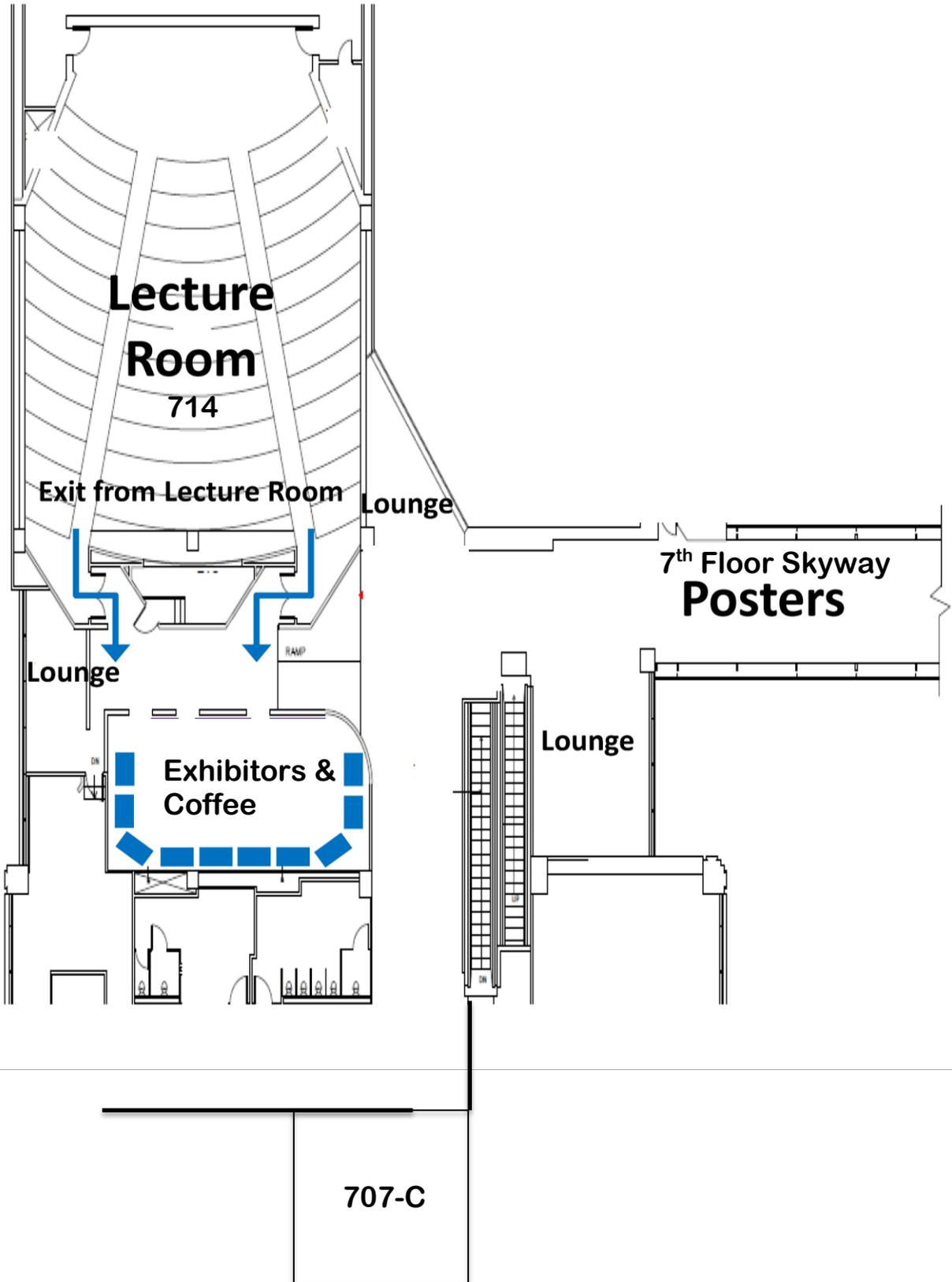


HUNTER
The City University of New York

Enter at 68th Street and Lexington Avenue
212-772-4000 ■ www.hunter.cuny.edu

- | | | | |
|-----------------------|---|---|----------------|
| Thomas Hunter Hall |  |  | Kaye Playhouse |
| Hunter North Building |  |  | Skyway |
| Hunter West Building |  |  | Subway |
| Hunter East Building |  |  | Bus |

Conference Venue Layout (Hunter West Building 7th Floor)



Conference Rooms

Registration.....Hunter West Building Lobby
Main Lecture RoomHunter West Room 714
Poster Viewing.....7th Floor Skyway over Lexington Ave.
Speaker Ready Room.....Hunter West Room 707-C; opens at 8 am each day
Exhibitor BoothsLounge across from Hunter West Room 714

Breakfast

Meeting attendees will be on their own for breakfast.

Coffee Breaks and Lunch

Coffee breaks will be in the lounge on the 7th floor across from room 714 at the times noted in the conference schedule. Room 707-C will be open for extra seating during these times.

On August 21-23rd lunch will be served in the 3rd floor cafeteria in the Hunter West building at the times noted in the schedule. Volunteers will be in place to guide attendees to this location.

Wireless Internet

WIFI is available. The network ID and password has been included in the bag you received at registration. If you need help accessing the WIFI network, please see the registration desk.

Building Security

Hunter college requires Hunter College IDs for anyone entering the building. You will not have to present a Hunter College ID or register for a visitor ID to enter the Hunter West Building. To gain access to the building, you will just need your MRA 2013 Workshop name badge that you receive at registration (so please hold onto it all week). There will be a special entry turnstile for MRA 2013 attendees.

Board Rooms

The Past President's Breakfast at 7:00 am on 8/21 and the Executive Board Meeting at 7:00 am on 8/22 will take place in the in the 3rd floor cafeteria in the Hunter West building.

CME Credits

The pre-conference educational symposium on August 20th has been accredited for 8 CME credits. The conference sessions on August 21-23 are ineligible for CME credit.

New York City Information

A map of New York City as well as the official New York City visitors guide has been included in your conference bag that you picked up when registering. A digital copy of the visitor's guide can be found at: <http://www.pageturnpro.com/NYC-Company/50888-NYC-Official-Visitor-Guide-Summer-2013/index.html#1>. This guide contains useful information on New York City. You can find events, information about the city, a subway map, airport transportation information, as well as hotel/shopping/sightseeing/dining information.

Julie Riederer has also prepared a comprehensive sightseeing guide which is available at: <http://weill.cornell.edu/mri/MRA13/pages/sites.html>.

Public Transportation Information

[MTA.info](http://www.mta.info) is the official site of the New York Metropolitan Transit Authority. Typically one-ride subway and local bus fares are \$2.50 (USD). You will need to use a Metrocard to enter the subway and these can be purchased for \$1 (USD) (and loaded with a fare) at most subway stations. There is also a 7-day unlimited ride Metrocard option (\$30.00 USD) if you anticipate riding the subway/bus a lot.

A current map of the New York City subway system can be found at: <http://www.mta.info/maps/submap.html>.

Airport Transportation Information

Each NYC area airport has different forms of ground transportation to reach Manhattan. Please visit the websites for the airports for more information:

[John F. Kennedy International Airport \(http://www.panynj.gov/airports/jfk.html\)](http://www.panynj.gov/airports/jfk.html)

[Newark Liberty International Airport \(http://www.panynj.gov/airports/newark-liberty.html\)](http://www.panynj.gov/airports/newark-liberty.html)

[Laguardia Airport \(http://www.panynj.gov/airports/laguardia.html\)](http://www.panynj.gov/airports/laguardia.html)

Taxis

Information on NYC taxis and rates can be found on the NYC Taxi and Limousine Commission website located at <http://www.nyc.gov/html/tlc/html/home/home.shtml>.

Weather

August is a warm month in New York City. According to weather.com the temperature averages between 68 and 83 degrees Fahrenheit.

Social Events

Tuesday August 20th 7:00 PM

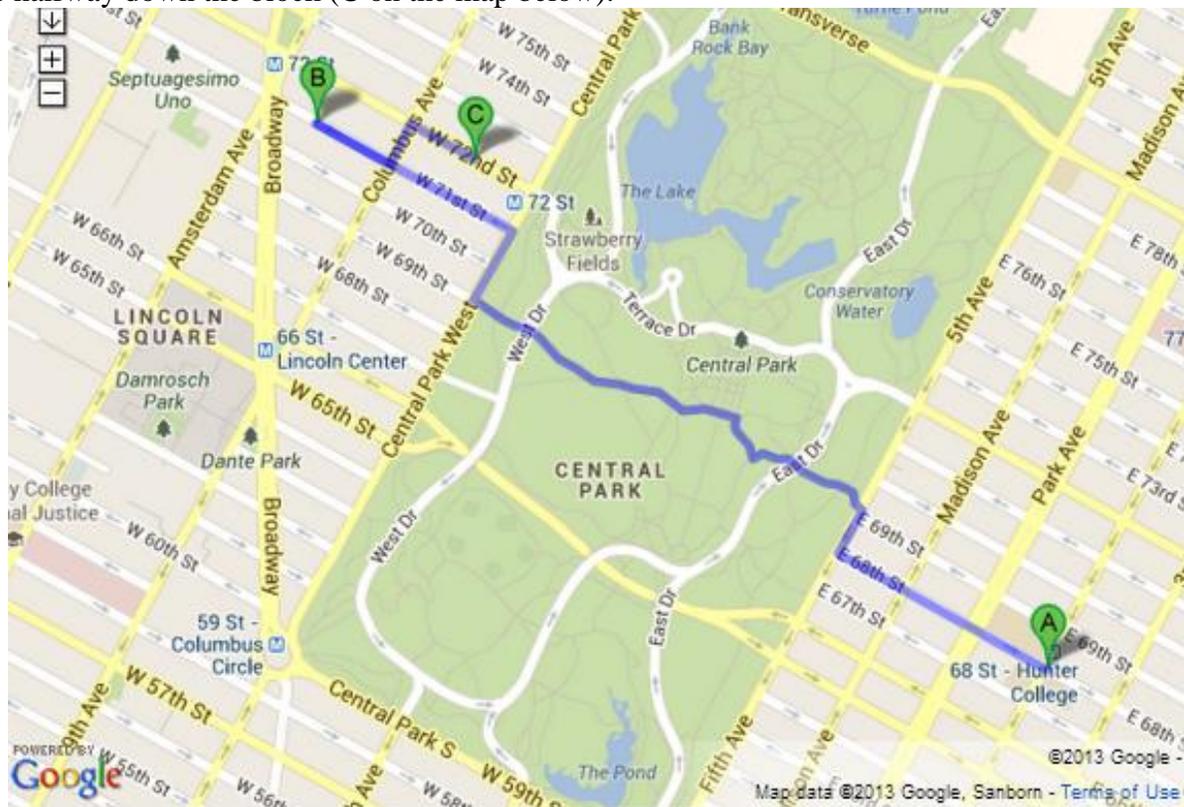
Organ Concert at the Church of the Blessed Sacrament (152 West 71st St.) & Opening Dinner at Sambuca (20 West 72nd St.)

Dr. Gregory D'Agostino will give an organ concert followed by a reception at Sambuca Restaurant.

Directions to the Church of the Blessed Sacrament from Hunter College

Walking

Walk west along 69th Street until you enter Central Park. Continue straight across the park until you exit at 69th and Central Park West. Turn right onto Central Park West, then left onto West 71st Street. The church will be on your left (B on map below). To go directly to Sambuca, instead of turning left onto West 71st street, walk to West 72nd street and turn left. Sambuca will be halfway down the block (C on the map below).



Public Transit

Board the M72 crosstown bus on the corner of 5th Avenue and East 69th Street toward West Side Freedom Pl. Exit the bus at 72nd Street and Columbus Ave. Walk one block south along Columbus Avenue and then turn right onto 71st Street. The church will be on your left.

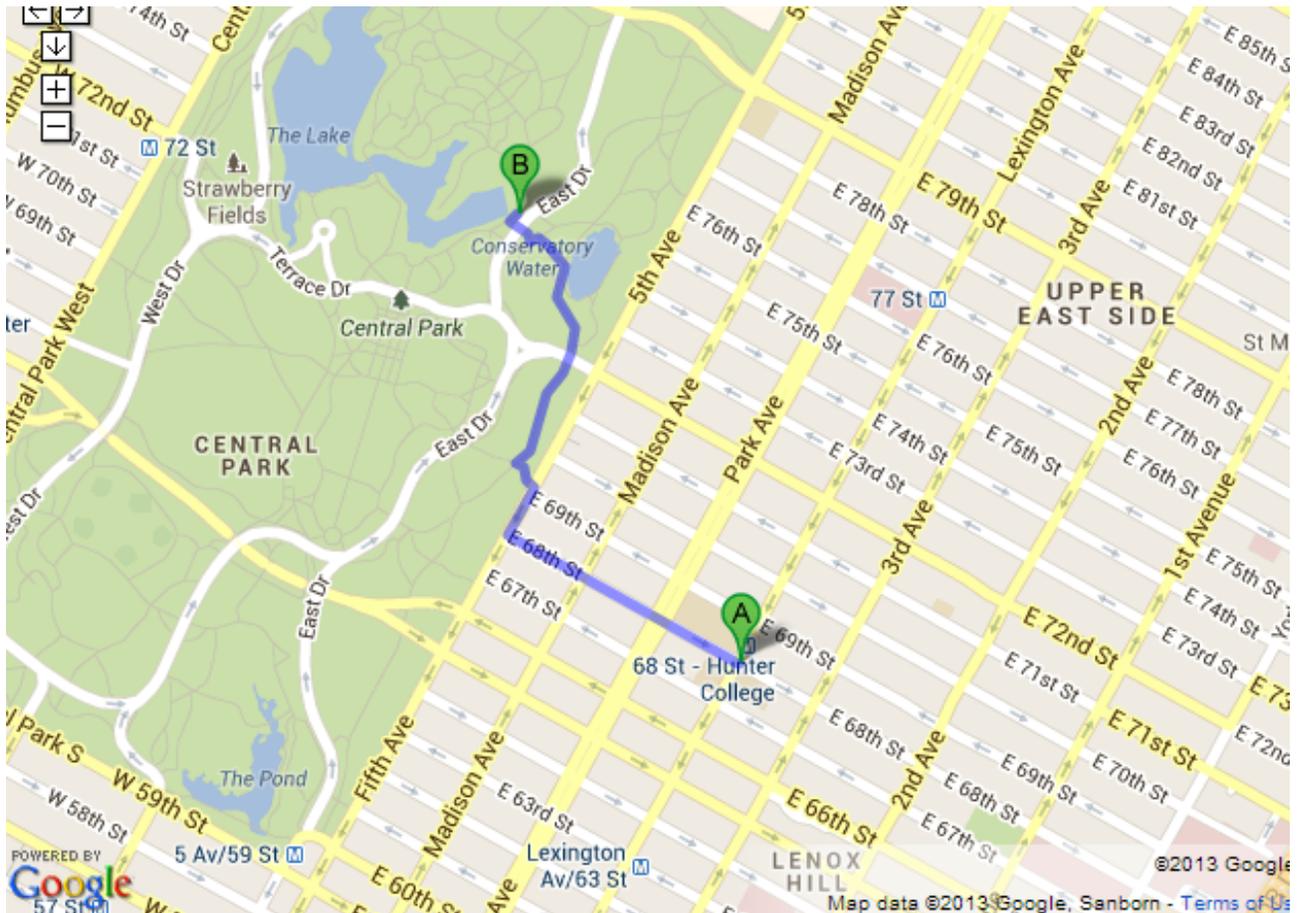
Wednesday August 21st 6:30 PM
Dinner at the Central Park Boathouse
(East 72nd Street and Park Drive North)

Enjoy dinner at the famous Central Park Boathouse while looking out at The Lake in Central Park.

Directions to the Central Park Boathouse
from Hunter College

Walking

From Park Avenue, turn left onto East 69th Street. Walk along East 69th Street until you enter Central Park at Fifth Avenue. Take the first right. Continue walking along the path until you cross Terrace Drive, then bar left. The Boathouse is located between the Lake and East Drive.



*Thursday August 22nd
7:00 PM (Boarding);
7:30 PM (Departure)*

**Dinner Cruise
(500 East 30th Street)**

Enjoy dinner while cruising the East and Hudson Rivers and taking in the Manhattan Skyline from a unique perspective.



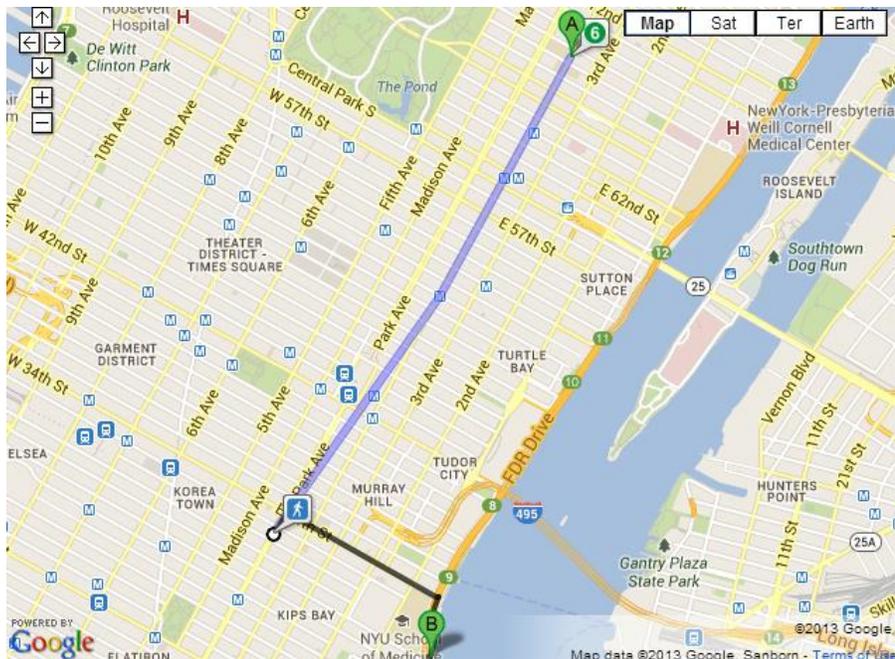
Directions to The Water Club -- Boat Cruise from Hunter College

Shuttle Buses

Shuttle buses will be provided for this event. The buses are from Metropolitan Shuttle. They will leave starting at 6 pm from the west side of Lexington Avenue between 68th and 69th streets and arrive at the dinner cruise dock by the 7:00 pm boarding time. After the cruise at 10:30 pm, the buses will be at the dock to pick attendees up.

Public Transit

Walk to the 6 train subway stop on Lexington Avenue between 68th and 69th Street. Take the 6 to the 33rd Street stop. Walk east along East 34th Street until you reach the FDR Drive. Cross the FDR and then walk south along the East River Esplanade. The Water Club will be on your left.



Friday August 23rd 5:30 PM
Pre-Theater Dinner
Hunter College Faculty Dining Room
(8th Floor of Hunter West Building)

Enjoy a pre-theater dinner while overlooking Manhattan. (Note booking/paying for theater tickets is the responsibility of the meeting attendee).

Directions

The faculty dining room is just one floor above the main conference rooms.



Presentation Guidelines

Presentations

Oral presentations will be 8 minutes each with 2 minutes for questions. Please submit your PowerPoint file to mrsubmission@gmail.com by 12:00 pm (noon) the day before your presentation.

Posters

Traditional posters should be posted on the board in the 7th floor skyway corresponding to your poster number by Thursday morning (8/22). Posters should be 3 feet tall by 3 feet wide. In addition, please prepare a one slide, one minute PowerPoint presentation to introduce your poster and submit it by 12:00 pm (noon) on Wednesday 8/21 to mrsubmission@gmail.com. The use of movies in your PowerPoint slide is encouraged!

Conference Schedule _____

Scientific Session Schedule at a Glance

Wednesday, August 21st	
8:15 am	Session I: New Techniques
10:10 am	Coffee Break
10:40 am	Session II: Aorta/Pulmonary
12:30 pm	Lunch
1:30 pm	Session III: Flow
3:45 pm	Coffee Break
4:00 pm	Session IV: Abdominal/Liver/Renal

Thursday, August 22nd	
8:00 am	Session V: Contrast Agents
9:40 am	Coffee Break
10:00 am	Session VI: Poster Presentations
10:31 am	Break
10:45 am	Poster Viewing
12:15 pm	Lunch
1:15 pm	Hot Topics in MRA
2:00 pm	Session VII: Cardiac
4:00 pm	Coffee Break
4:15 pm	Session VIII: Coronary

Friday, August 23rd	
8:10 am	Session IX: Peripheral
10:05 am	Coffee Break
10:30 am	Session X: Cerebral
12:00 pm	Lunch
1:00 pm	Session XI: Carotid
2:20 pm	Coffee Break
2:40 pm	Session XII: Vessel Wall

Scientific Session
Wednesday August 21, 2013

8:15 am	Opening Remarks	Yi Wang
8:25 am	President's Remarks	Tim Leiner

Session I: New Techniques
Chairs: Jim Pipe & Chuck Mistretta

8:30 am	7T MRA	Harald Quick
8:40 am	Asymmetric ascending aorta stretch assessed with DENSE MRI	Henrik Haraldsson
8:50 am	A Novel Adaptive Approach to the Steady-State Triggering for the ECG-Gated Contrast-Enhanced MR Angiography	Yutaka Natsuaki
9:00 am	Accurate Modeling of 3D CE-MRA Using Blood-Derived R1 and R2* Relaxivities	Jeff Maki
9:10 am	Three-Dimensional selective MR Imaging with 2D spatially selective pulse and a 3D radial stack of EPI trajectory (5 minute)	Wei Feng
9:20 am	A Variable-Density Pseudo-Random Undersampling Strategy for 3D Dynamic MRI (5 minute)	Jing Liu
9:30 am	SNR and CNR in Subtraction and Dixon CE-MRA	Eric Stinson
9:40 am	Ultrashort Echo Time- and Dixon-based Magnetic Resonance Attenuation Correction	Jason Bini
9:50 am	Recent Progress in MRA	Shivraman Giri
10:00 am	Panel discussion	Pipe, Mistretta, Foo, Riederer, Frayne
10:10 am	Coffee Break	

Session II: Aorta/Pulmonary
Chairs: Philippe Douek & Stefan Ruehm

10:40 am	Does COPD relate to Aortic Aneurysm	Kana Fujikura
10:50 am	Rapid Free-Breathing 4D Time-Resolved Non-Contrast Aorta MRA without Cardiac Triggering and External Gating	Li Feng
11:00 am	Optimization of time-resolved CE-MRA of the thoracic vasculature in Fontan patients: a quantitative approach	Karolien Jaspers
11:10 am	Detection of Endoleaks with MR Imaging after Endovascular Repair	Tim Leiner
11:20 am	Analysis of the Relevance of Contrast-Enhanced MR-Angiography in Comparison to CT-Angiography	Manuela Aschauer

11:30 am	CE-MRA in pediatric patients	Guenther Schneider
11:40 am	Spiral MRA of the aorta, renal arteries and veins	Silvina Dutruel
11:50 am	Pulmonary Embolus Workup	Josephine Pressacco
12:00 pm	Comparison of contrast enhanced MRA, and invasive cardiac catheterization for evaluation of patients with pulmonary atresia with ventricular septal defect	Jingzhe Liu
12:10 pm	Less is more: Towards better patient experience in vascular MR	Maggie Fung
12:20 pm	Panel Discussion	Douek, Rheum, Prince, Leiner
12:30 pm	Lunch	

Session III: Flow

Chairs: Mike Hope & Jing Liu

1:30 pm	Energy Loss in the Presence of Abnormal Aortic Flow	Alex Barker
1:40 pm	Phase Contrast Magnetic Resonance Imaging in Cerebrovascular Malformations	M. Ethan MacDonald
1:50 pm	Ultra-high temporal resolution vascular pulsation of aneurysms	Till Illies
2:00 pm	Comparison of 4D flow and 2D PC MRI Blood Flow Quantification in Children and Young Adults with Congenital Heart Disease	Susanne Schnell
2:10 pm	Spin Labeled MR Angiography of the Extracranial Carotid Arteries	Ioannis Koktzoglou
2:20 pm	Systolic Flow Displacement Predicts Future Ascending Aortic Growth in Patients with Bicuspid Aortic Valves Undergoing MR Surveillance	Nicholas Burriss
2:30 pm	Abnormal WSS and helical flow in Bicuspid Aortic Valve Patients Status Post Valve-Sparing Aortic Root Replacement	Thomas Hope
2:40 pm	Impact of Bicuspid Aortic Cusp Fusion Morphology on Aortic 3D Outflow Patterns, Wall Shear Stress and Expression of Aortopathy	Michael Markl
2:50 pm	Simulating Contrast Transport with CFD and 4D PC-MRI Derived Flow Fields	Vitaliy Rayz
3:00 pm	Hemodynamic Evaluation of Cerebral AVMs with 4D Flow and Perfusion MRI	Can Wu
3:30 pm	Panel Discussion	Hope, Liu, Markl, Saloner
3:45 pm	Coffee Break	

Session IV: Abdominal/Liver/Renal
Chairs: Winfried Willinek & Elizabeth Hecht

4:00 pm	How to Acquire Body Non-Contrast MRA	Mitsue Miyazaki
4:10 pm	Changes in renal artery flow in patients with cirrhotic liver disease	Oliver Wieben
4:20 pm	Dynamic Contrast Enhanced Imaging and Angiography of the Liver in a Single Breath-Hold Using 2pt-Dixon Fat/Water Separated HYCR with Fluoro Time Triggering	Mahdi Rahimi
4:30 pm	Abdominal Vasculature in Dynamic Contrast Enhanced Liver MRI at 3.0 T	Patrick Kupczyk
4:40 pm	Clinical Assessment of a Non-contrast MR Angiography Protocol for the Pre-Transplant Evaluation of the Liver Vasculature	Jeremy D. Collins
4:50 pm	Improved hepatic Hemangioma visualization with time resolved MRA	Martin Prince
5:00	Patch-based Under-sampled Image Reconstruction	Mitchell Cooper
5:10 pm	Quantitative evaluation of hepatic hemodynamics in patients with advanced liver cirrhosis and controls using 4D flow MRI with k-t Grappa	Zoran Stankovic
5:20 pm	Panel discussion	Willinek, Hecht, Carr, Reeder
5:35 pm	Preop Planning of DIEP Flaps	Georg Bongartz
5:40 pm	MRA of the Skin	Nanda Thimmappa
5:45 pm	Panel Discussion	Bongartz, Thimmappa
6:00 pm	Break for the day	
6:30 pm	Dinner at Central Park Boathouse	

Scientific Session

Thursday August 22, 2013

Session V – Contrast Agents & Safety

Chairs: Giles Roditi & Georg Bongartz

8:00 am	MultiHance, a high relaxivity agent approved for peripheral MRA	Gianpaolo Pirovano
8:10 am	Evaluation of the progression of atherosclerotic plaque with molecular MRI and a peptide targeted contrast agent in an atherosclerosis mouse model	Zheng-Rong Lu
8:20 am	Gd-Free T1 MRI Contrast Agents for High Magnetic Field Applications	Xian-An Zhang
8:30 am	ESION-Enhanced MR Angiography in extremity vessels of rabbit thigh	Whal Lee
8:40 am	Polysaccharide based microparticles developed as a new MRI diagnostic tool for abdominal aorta aneurysm	Thomas Bonnard
8:50 am	Dual Contrast Enhanced Cardiac MRI using Manganese and Gadolinium	Yuka Matsuura
9:00 am	Intraindividual cross-over comparison of Gadobutrol and Gadoterate enhanced carotid MR-Angiography in patients with cerebrovascular disease	Marco Essig
9:10 am	MRA at 3T in Peripheral Arterial Occlusive Disease	Javier Arnaiz
9:20 am	0.5 gaopentetate dimeglumine and 1.0M gadobutrol in time-resolved contrast-enhanced 4D-MRA	Dariusch Hadizadeh
9:30 am	Flourine 19	Martjin Wolters
9:40 am	Coffee Break	

Session VI – Poster Presentations

Chairs: Tom Foo & Tom Grist

10:00 am	Analysis of dynamic contrast-enhanced magnetic resonance images of human carotid arteries with the MARINA software	Sarayu Ramachandran
10:01 am	Cerebral Metabolic Rate of Oxygen Mapping Using QSM	Jingwei Zhang
10:02 am	Susceptibility and R2* Relaxation Tensor Imaging of Veins in Vivo	Cynthia Wisnieff
10:03 am	Common Femoral Vein Lumen Area Depends on Hydration	Amanda Bares
10:04 am	High Resolution MRI of the Intercranial Arterial Wall	Sarah Power
10:05 am	Particulate matter exposure worsens atherogenic profile	Venkatesh Mani
10:06 am	Highly Accelerated Free-breathing ECG-Triggered Contrast-Enhanced Pulmonary Vein Angiography with Isotropic Spatial Resolution	Sebastien Roujol
10:07 am	Feasibility of T1 and T2 weighted dark blood imaging of the aortic wall for Aortitis	Iulius Dragonu
10:08 am	MRI of Intra Cranial Hemorrhage	Jingwei Zhang

10:09 am	Contrast-Enhanced Time-Resolved Magnetic Resonance Angiography for Diagnosis and Follow-up of Intracranial Dural Arteriovenous Fistulae	Srikikanth Reddy Boddu
10:10 am	Comparison of Contrast-Enhanced Time-Resolved MRA and Digital Subtraction Angiography for Evaluation of Spinal Vascular Malformations	Srikikanth Reddy Boddu
10:11 am	ECG Pad for Efficient Cardiac MR Gating	Nanda Thimmappa
10:12 am	Reproducibility of analysis of a simple multicenter protocol for evaluation of deep vein thrombosis	Nadie Alie
10:13 am	Imaging of the Spinal Ateriovenus Fistula with TRICKS	Cycilia Kan Mei Ling
10:14 am	The Use of High Spatial Resolution Contrast-Enhanced MRA	Giles Roditi
10:15 am	Order of Magnitude Speed-up in 2pt Dixon Water/Fat Separation Processing	Dong Zhou
10:16 am	Delayed Nephrogenic Systemic Fibrosis in the Post-FDA Restriction Era	Giles Roditi
10:17 am	QSM-based venography of extremities	Alexey Dimov
10:18 am	T1 Mapping with Variable Angle Long Echo Train Relaxometric Imaging (VALERI)	Thanh Nguyen
10:19 am	Perfusion in the Brain with QSM	Bo Xu
10:20 am	Venous Oxygenation Quantification using QSM	Bo Xu
10:21 am	Attenuation Correction for Flexible MR Coils in Combined PET/MRI Imaging	Mootaz Eldib
10:22 am	Delayed Enhancement Cardiac Magnetic Resonance	Jonathan D. Kochav
10:23 am	Self-Navigated 3D Whole Heart Imaging for Combined Coronary MRA and Delayed Hyperenhancement Imaging	Davide Piccini
10:24 am	Improving Dynamic Enhanced (DCE) MR Perfusion Measurements by Appropriate Selection of Image Acquisition Parameters	Estee Lee
10:25 am	MR angiography in acute thalamic infarction	Hitoshi Miki
10:26 am	Non-Contrast Enhanced MRA for Perforator Mapping in DIEP-Flap Breast Reconstruction	J. Masia
10:27 am	Low WSS drives eccentric plaque formation in an animal model of induced atherosclerosis	M. Sigovan
10:28 am	Lenticulostriate Arteries Visualization at 1.5T using Flow Sensitive Black Blood Imaging	Faïza Admiraal-Behloul
10:29 am	MRA Perforator Flap Angiography Report Generation Automation	John Zhuang
10:30 am	Differentiating normal and cirrhotic liver on time-resolved MRA	Lorne Hofstetter
10:31 am	Break	

10:45 am	Poster Viewing in 7 th Floor Skyway	
12:15 pm	Lunch	
	Discussion of MRA Hot Topics:	
1:15 pm	<ul style="list-style-type: none"> • Standardization vs. Customization: protocols, reports, post-processing • Certification of technologists & physicians • Future advances: <ul style="list-style-type: none"> ○ Pulse sequences ○ Hardware ○ Contrast agents • New directions for annual MRA Workshop 	Yi Wang, Tom Grist, James Meaney, Tom Foo

Session VII – Cardiac

Chairs: Graham Wright, Leon Axel

2:00 pm	Cardiac Magnetic Resonance Imaging findings and the risk of cardiovascular events - a systematic review of available literature	Hamza El Aidi
2:10 pm	Intramyocardial Hemorrhage Following Acute Myocardial Infarction	James Goldfarb
2:20 pm	MR tissue phase mapping reveals gender relation alterations of rv function and rotation	Marius Menza
2:30 pm	Real-time First-Pass Perfusion Myocardial MRI Using Ungated Continuous Radial Acquisition	Behzad Sharif
2:40 pm	Intervoxel Dephasing on Steady State Free Precession Cardiac MRI	Lauren Simprini
2:50 pm	Effect of renal sympathetic denervation on left ventricular hypertrophy in patients	Tim Leiner
3:00 pm	Quantification of Energy Loss in Hypertrophic Cardiomyopathy using 4D Flow MRI	Pim van Ooij
3:10 pm	Left atrial remodeling by MRI	Dana Peters
3:20 pm	Evaluation of Four Reconstruction Methods for CMR Perfusion with Radial Sampling	Silvio Pflugi
3:30 pm	Panel discussion	Wright, Axel, Nezafat, Li
4:00 pm	Coffee Break	

Session VIII – Coronary

Chairs: Dwight Nishimura & Matthias Stuber

4:15 pm	High-Resolution Whole-Heart Coronary MR Angiography with Variable-Density 3D Cones Imaging and L1-ESPIRiT	Nii Okai Addy
4:25 pm	Optimized Data Selection for 3D Radial Self-Navigated Whole Heart Coronary MRA	Jerome Chaptinel
4:35 pm	Pressure Gradient Measurement in the Coronary Artery Using 4D PC-MRI	Zhaoyang Fan
4:45 pm	An Iterative Approach to Improved Motion Correction in Self-Navigated Coronary MRA	Giulia Ginami

4:55 pm	Optimized Navigator Motion Estimation for Coronary MRA	R. Reeve Ingle
5:05 pm	Whole-Heart Imaging with an Enlarged Acquisition Window	Keigo Kawaji
5:15 pm	Cardiac Gating Calibration by MR Septal Scout Obtains Sharper Coronary MRA Images	Garry Liu
5:25 pm	Initial experience with single breath-hold whole-heart coronary MR angiography featuring sparse, incoherent sampling and L1-regularized iterative SENSE	Michaela Schmidt
5:30 pm	Assessment of Coronary Artery Disease Using 3.0T Magnetic Resonance Coronary Angiography	Yang Qi
5:45 pm	Panel discussion	Li, Stuber, Nishimura, Wang, Wright
6:00 pm	Break for the day	
6:00 pm	Shuttle buses leave for Evening Dinner Cruise	

Scientific Session
Friday August 23, 2013

Session IX – Peripheral
Chairs: Jeffrey Maki & Tim Leiner

8:10 am	Isotropic High-Resolution QISS MRA of Peripheral and Extracranial Carotid Arteries	Robert Edelman
8:20 am	High Acceleration Quiescent-Interval Single Shot Magnetic Resonance Angiography at 3 Tesla in Patients with Peripheral Artery Disease	Parag Amin
8:30 am	Feasibility of Simultaneous Non-contrast Angiography and intraPlaque hemorrhage (SNAP) in Femoral Artery Imaging	Huijun Chen
8:40 am	Non-contrast peripheral angiography at 3T using QISS	Shivraman Giri
8:50 am	Impact of field strength on the performance of non-enhanced ECG-gated quiescent-interval single shot MRA	Jan Hansmann
9:00 am	3T Non-Contrast MR Angiography at Abdominal/Pelvic Station	Xiangzhi Zhou
9:10 am	Velocity-selective magnetization-prepared non-contrast-enhanced MRA	Taehoon Shin
9:20 am	Evaluation of Coil Compression with Direct Virtual Coil for Data-Driven Parallel Imaging in Dynamic MR Angiography	Kang Wang
9:30 am	Optimal CAIPRINHA Patterns and Acceleration Apportionment Applied to CE-MRA	Paul Weavers
9:40 am	Panel discussion	Maki, Leiner, Edelman, Miyazaki
10:05 am	Coffee Break	

Session X – Cerebral
Chairs: John Huston & Pat Turski

10:30 am	The role of abnormal flow in neurodegenerative disease	E. Mark Haacke
10:40 am	Time-Resolved Cerebral MRA	Srikikanth Reddy Boddu
10:50 am	Identification of the Artery of Adamkiewicz	Hideki Ota
11:00 am	Improved Visualization of Ateriovenous Malformation Using Time of Arrival Enhanced 4D MRA	Yijing Wu
11:10 am	Retrograde Venous Flow in Dural Sinus and Internal Jugular Vein on 3D TOF MRA	Bum-soo Kim
11:20 am	Contrast-enhanced Magnetic Resonance Venography with Gadoverset Trisodium	Larry Kramer
11:30 am	High Resolution Dynamic Susceptibility Contrast Perfusion Imaging Using Multi-Echo Spirals and Temporal Compressed Sensing-Based Reconstruction	Julie Velikina
11:40 am	Accelerating Time-of-Flight	Jerome Yerly
11:50 am	Panel discussion	Huston, Frayne, Turski

12:00 pm **Lunch**

Session XI – Carotid

Chairs: Frank Korosec & David Saloner

1:00 pm	Black Blood and Bright Blood Time-Resolved Carotid Area Measurements	Mari E. Boesen
1:10 pm	Balancing View-sharing and Compressed Sensing in dynamic Contrast-Enhanced Magnetic Resonance Angiography	Stanislas Rapacchi
1:20 pm	Inhomogeneity Insensitive MSDE	Jinnan Wang
1:30 pm	Semi-automatic inter-modal planar correspondence corrections for better tissue characterization in carotid plaque specimens	Otilia Nasui
1:40 pm	Sub-millimeter 3D diffusion-weighted imaging of carotid arterial wall	Yibin Xie
1:50 pm	Carotid Plaque Imaging and Clinical Risk Assessment	Chun Yuan
2:00 pm	High Resolution 3D-DCE Imaging with Direct Arterial Input Function Measurement	Jason Mendes
2:10 pm	Panel discussion	Korosec, Saloner, Frayne
2:20 pm	Coffee Break	

Session XII – Vessel Wall

Chairs: Chun Yuan & Ajay Gupta

2:40 pm	3D Black Blood Dynamic Contrast Enhanced (DCE) MRI for the Quantification of Permeability of Atherosclerotic Plaques	Claudia Calcagno
2:50 pm	Simultaneous Acquisition of Bright Blood Arterial Input Function and Black Blood Vessel Wall Uptake Yielding Quantitative Concentration-Time Curves for Kinetic Analysis of Dynamic Contrast Enhanced Imaging in the Atherosclerotic Vessel Wall	Philip Robson
3:00 pm	A Novel Application of Simultaneous Noncontrast Angiography and Intraplaque Hemorrhage (SNAP)	Xihai Zhao
3:10 pm	The validation of SNAP MRA	Jinnan Wang
3:20 pm	SNAP Imaging Acceleration using Model-based Subspace Parallel Reconstruction	Zechen Zhou
3:30 pm	Improved SNAP with Venous Flow Suppression	Haining Liu
3:40 pm	SNAP panel discussion	Liu, Zhou, Wang
3:50 pm	Meta-Analysis and Systematic Review of the Predictive Value of Carotid Plaque Hemorrhage	Tobias Saam
4:00 pm	In Vivo ADC, T1 and T2* Measurements of Atherosclerosis Plaques in Symptomatic and Asymptomatic Patients	Seong-Eun Kim
4:10 pm	Multicontrast Atherosclerosis Characterization (MATCH) within a Single Scan	Zhaoyang Fan
4:20 pm	Vessel Wall Analysis Using 3T MRI in Cerebral Main	Keiji Igase

Artery Stenosis

4:30 pm	Distortion reduction of Diffusion Weighted Vessel Wall Imaging with Reduced FOV Echo Planar Imaging	M. Miyoshi H. Kabasawa
4:40 pm	Distribution of Vessel Wall Microvasculature in Abdominal Aortic Aneurysm	Van Lai Nguyen
4:50 pm	Closing Remarks	Martin Prince
5:00 pm	Break for the day	
5:30 pm	Pre-theater Dinner	

Poster Listing By Number

01	Analysis of dynamic contrast-enhanced magnetic resonance images of human carotid arteries with the MARINA software	Sarayu Ramachandran
02	Cerebral Metabolic Rate of Oxygen Mapping Using QSM	Jingwei Zhang
03	Susceptibility and R2* Relaxation Tensor Imaging of Veins in Vivo	Cynthia Wisnieff
04	Common Femoral Vein Lumen Area Depends on Hydration	Amanda Bares
05	High Resolution MRI of the Intercranial Arterial Wall	Sarah Power
06	Particulate matter exposure worsens atherogenic profile	Venkatesh Mani
07	Highly Accelerated Free-breathing ECG-Triggered Contrast-Enhanced Pulmonary Vein Angiography with Isotropic Spatial Resolution	Sebastien Roujol
08	Feasibility of T1 and T2 weighted dark blood imaging of the aortic wall for Aortitis	Iulius Dragonu
09	MRI of Intra Cranial Hemorrhage	Jingwei Zhang
10	Contrast-Enhanced Time-Resolved Magnetic Resonance Angiography for Diagnosis and Follow-up of Intracranial Dural Arteriovenous Fistulae	Srikikanth Reddy Boddu
11	Comparison of Contrast-Enhanced Time-Resolved MRA and Digital Subtraction Angiography for Evaluation of Spinal Vascular Malformations	Srikikanth Reddy Boddu
12	ECG Pad for Efficient Cardiac MR Gating	Nanda Thimmappa
13	Reproducibility of analysis of a simple multicenter protocol for evaluation of deep vein thrombosis	Nadie Alie
14	Imaging of the Spinal Ateriovenus Fistula with TRICKS	Cycilia Kan Mei Ling
15	The Use of High Spatial Resolution Contrast-Enhanced MRA	Giles Roditi
16	Order of Magnitude Speed-up in 2pt Dixon Water/Fat Separation Processing	Dong Zhou
17	Delayed Nephrogenic Systemic Fibrosis in the Post-FDA Restriction Era	Giles Roditi
18	QSM-based venography of extremities	Alexey Dimov
19	T1 Mapping with Variable Angle Long Echo Train Relaxometric Imaging (VALERI)	Thanh Nguyen
20	Perfusion in the Brain with QSM	Bo Xu
21	Venous Oxygenation Quantification using QSM	Bo Xu
22	Attenuation Correction for Flexible MR Coils in Combined PET/MRI Imaging	Mootaz Eldib
23	Delayed Enhancement Cardiac Magnetic Resonance	Jonathan D. Kochav
24	Self-Navigated 3D Whole Heart Imaging for Combined Coronary MRA and Delayed Hyperenhancement Imaging	Davide Piccini

25	Improving Dynamic Enhanced (DCE) MR Perfusion Measurements by Appropriate Selection of Image Acquisition Parameters	Estee Lee
26	MR angiography in acute thalamic infarction	Hitoshi Miki
27	Non-Contrast Enhanced MRA for Perforator Mapping in DIEP-Flap Breast Reconstruction	J. Masia
28	Low WSS drives eccentric plaque formation in an animal model of induced atherosclerosis	M. Sigovan
29	Lenticulostriate Arteries Visualization at 1.5T using Flow Sensitive Black Blood Imaging	Faïza Admiraal-Behloul
30	MRA Perforator Flap Angiography Report Generation Automation	John Zhuang
31	Differentiating normal and cirrhotic liver on time-resolved MRA	Lorne Hofstetter

Magnetic Resonance Angiography

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