Workshop on Cardiovascular Science, Engineering and Medicine

**AIMS AND SCOPE**

This conference is geared toward exposing engineers to the state-of-the-art in the understanding and treatment of a wide array of cardiovascular diseases with special emphasis in identifying and explaining knowledge gaps in understanding the pathophysiology of cardiovascular diseases, with emphasis on the technological challenges faced in the treatment of these diseases.

Discussions will expose attendees to a vast array of specific topics. These topics will include molecular and cellular pathophysiology of cardiovascular diseases, and specific challenges to the achievement of efficacious and durable therapies for these diseases.

**CARDIOVASCULAR DISEASES**

- Ischemia: coronary and peripheral arterial occlusive disease
- Valvular: aortic and mitral valve disease
- Congenital/cardiac malformations
- Cardiac failure

**DIAGNOSIS AND THERAPEUTICS**

- Novel diagnostic imaging: echocardiography, magnetic resonance imaging, positron emission tomography
- State-of-the-art pharmacotherapies
- Cell-based therapies: stem cells and related cell-based strategies
- Device-based therapies: cardiac valvular prostheses, arterial stents and stent-grafts, short- and long-term mechanical circulatory support

**SPEAKERS**

Billy Cohn, M.D., (Director, Center for Technology and Innovation; Director, Cullen Cardiovascular Research Laboratories, Director, Texas Heart Institute)

John Cooke, M.D., Ph.D., (Joseph C. “Rusty” Walter and Carole Walter Looke Presidential Distinguished Chair in Cardiovascular Disease Research, Houston Methodist)

John Criscione, M.D., Ph.D., (Associate Professor, Texas A&M University)

Charles Fraser Jr., M.D., (Surgeon-in-Chief, Chief of Congenital Heart Surgery, Texas Children’s Hospital/Baylor College of Medicine)

O.H. “Bud” Frazier, M.D., (Chief, Cardiopulmonary Transplantation, Program Director and Chief, Center for Cardiac Support, Director of Cardiovascular Surgery, Research, Texas Heart Institute)

K. Lance Gould, M.D., (The Martin Bucksbaum Distinguished University Chair in Heart, UT Houston/Memorial Hermann Hospital)

Igor Gregoric, M.D., (Chief and Program Director, Surgical Division, Center for Advanced Heart Failure, UT Houston/Memorial Hermann Heart and Vascular Institute)

Biswajit Kar, M.D., (Chief and Program Director, Medical Division, Center for Advanced Heart Failure, UT Houston/Memorial Hermann Heart and Vascular Institute)

Christof Karmonik, Ph.D., (Houston Methodist Hospital and Research Institute)

Rajesh Krishnamurthy, M.D., (Section Chief, Radiology Research and Cardiac Imaging, Director for Research, EB Singleton Department of Pediatric Radiology, Texas Children’s Hospital)

Tom Nguyen, M.D., (Director, Minimally Invasive Valve Surgery, UT Houston/ Memorial Hermann Hospital)

Keshava Rajagopal, M.D., Ph.D., (Surgical Director of Lung Transplant, UT Houston/Memorial Hermann Hospital)

Egemen Tuzun, M.D., (Scientific Director, Texas A&M Institute for Preclinical Studies, Texas A&M University)

William Zoghbi, M.D., (Weill Cornell Medical College professor of medicine, Cardiologist at the Methodist DeBakey Heart & Vascular Center/Houston Methodist)
MONDAY, MARCH 14
10:00 to 10:30 a.m. Workshop Inauguration
G. Laine, Ph.D.; N.K. Anand, Ph.D.; A. Polycarpou, Ph.D.; C. Georghiades, Ph.D.
10:30 to 11:15 a.m. O.H. “Bud” Frazier, M.D.
11:15 to 11:30 a.m. Discussion
11:30 to 11:45 a.m. Break
11:45 a.m. to 12:30 p.m. Igor Gregoric, M.D.
12:30 to 12:45 p.m. Discussion
12:45 to 2:00 p.m. Lunch
2:00 to 2:45 p.m. Keshava Rajagopal, M.D., Ph.D.
2:45 to 3:00 p.m. Discussion
3:00 to 3:15 p.m. Break
3:15 to 4:00 p.m. Egemen Tuzun, M.D., Ph.D.
4:00 to 4:15 p.m. Discussion
4:15 to 4:30 p.m. Break
4:30 to 5:15 p.m. John Criscione, M.D., Ph.D.
5:15 to 5:30 p.m. Discussion

TUESDAY, MARCH 15
10:00 to 10:45 a.m. K. Lance Gould, M.D.
10:45 to 11:00 a.m. Discussion
11:00 to 11:15 a.m. Break
11:15 a.m. to 12:00 p.m. Rajesh Krishnamurthy, M.D.
12:00 to 12:15 p.m. Discussion
12:15 to 2:00 p.m. Lunch
2:00 to 2:45 p.m. William Zoghbi, M.D.
2:45 to 3:00 p.m. Discussion
3:00 to 3:15 p.m. Break
3:15 to 4:00 p.m. Tom Nguyen, M.D.
4:00 to 4:15 p.m. Discussion
4:15 to 4:30 p.m. Break
4:30 to 5:15 p.m. Christof Karmonik, Ph.D.
5:15 to 5:30 p.m. Discussion

WEDNESDAY, MARCH 16
10:00 to 10:45 a.m. Bisjavit Kar, M.D.
10:45 to 11:00 a.m. Discussion
11:00 to 11:15 a.m. Break
11:15 a.m. to 12:00 p.m. John Cooke, M.D., Ph.D.
12:00 to 12:15 p.m. Discussion
12:15 to 2:00 p.m. Lunch
2:00 to 2:45 p.m. Billy Cohn, M.D.
2:45 to 3:00 p.m. Discussion
3:00 to 3:15 p.m. Break
3:15 to 4:00 p.m. Charles Fraser Jr., M.D.
4:00 to 4:15 p.m. Discussion
4:15 to 5:00 p.m. Concluding Session: Discussion of future workshops

WORKSHOP CHAIR
Kumbakonam Rajagopal, Ph.D.

ORGANIZING COMMITTEE

Register for the workshop
For more information:

Dr. Kumbakonam Rajagopal
J.M. Forsyth Chair, Regents Professor, and Distinguished Professor
krajagopal@tamu.edu
979.862.4552

Dr. Anastasia Muliana
Professor
amuliana@tamu.edu
979.458.3579

EVENT SPONSORS

Texas A&M Engineering Experiment Station
Texas A&M Engineering
Texas A&M Mechanical Engineering
Billy Cohn, M.D.
*Engineering the next generation of total artificial heart*

John Cooke, M.D., Ph.D.
*How nuclear reprogramming is changing Medicine*

John Criscione, M.D., Ph.D.
*Growth and Remodeling of the Heart as a Cure for Heart Disease*

Charles Fraser Jr., M.D.
*A Look into the Evolution of Pediatric Heart Surgery*

O.H. “Bud” Frazier, M.D.
*A life story dedicated to mechanical circulatory support*

K. Lance Gould, M.D.
*Coronary Physiology Trumps Anatomy to Guide CAD Management*

Igor Gregoric, M.D.
*Challenges in LVAD thrombosis!*

Biswajit Kar, M.D.
*Percutaneous mechanical circulatory support*

Christof Karmonik, Ph.D.
*Characterizing Flow in the Aorta of Patients with Type B Aortic Dissections and with Left Ventricular Assist Devices: Magnetic Resonance and Computational Simulations*

Rajesh Krishnamurthy, M.D.
*Managing the Future of Cardiovascular Imaging in Children*

Tom Nguyen, M.D.
*Treatment of Valvular Heart Disease: Past, Present, and Future*

Keshava Rajagopal, M.D., Ph.D.
*State-of-the art mathematical and physiological approaches to the assessment of cardiac valvular and arterial stenoses*

Egemen Tuzun, M.D., Ph.D.
*Do we need pulsed operation? Engineering Perspective*

William Zoghbi, M.D.
*Valvular Heart Disease: In Vitro Modeling, Challenges, and Opportunities*
Courtesy transportation to the event from College Station is being provided by Aggieland’s Classy Chassis transportation services. Two buses have been reserved for those who have indicated they will need this service.

If you have not already done so please sign up for this service at the following link:

REGISTER FOR TRANSPORTATION

For more information:
Dr. Alan Freed
Email: afreed@tamu.edu
Phone: 979.862.4460

Pickup Location:
Royce E. Wisenbaker Engineering Research Center
Texas A&M University College Station, TX 77843
On Bizzell street between Ross street and University drive

College Station
Bus arrival: 6:30 a.m.
Bus departure: 7:00 a.m.

Houston
Bus departure: 7:00 p.m.