

# CONFERENCE PROGRAM

## Thursday, May 9, 2019

<b>19:00 – 20:30</b>	Dinner - <i>By invitation only</i>
----------------------	------------------------------------

## Friday, May 10, 2019

<b>07:00 – 08:00</b>	<b>Conference Registration and Continental Breakfast</b>
----------------------	--

<b>08:00 – 08:10</b>	<b><u>Opening Remarks:</u></b> <b>Mark Fogel, M.D.</b> (CHOP)
----------------------	--

<b>08:10 – 08:30</b>	<b>Paul Weinberg</b> (CHOP) - <i>Anatomy of Functional Single Ventricle</i>
----------------------	---

<b>08:30 – 09:00</b>	<b><u>Keynote Address:</u></b> <b>Bin Qiao</b> (Shandong Province Western Hospital, China) <i>Innovative Surgical Techniques for Congenital Heart Defects</i>
----------------------	--

Introduction: **Ajit Yoganathan** (Georgia Tech)

<b>09:00 – 10:40</b>	<b><u>Technical Session #1: Single Ventricle</u></b>
----------------------	--

Session Chair: **Sitaram Emani** (Boston Children's Hospital)

9:00-9:20: **Jack Rychik** (CHOP) - *Life with Half a Heart: Physiological and Clinical Manifestations of a Fontan Circulation*

9:20-9:40: **Ajit Yoganathan** (Georgia Tech) - *Towards the Future of Fontan Surgical Planning*

9:40-10:00: **Alison Marsden** (Stanford) - *Optimization of the Assisted Bidirectional Glenn Surgery for Single Ventricle Palliation in Neonates*

10:00-10:20: **Mark Fogel** (CHOP) - *Clinical Surgical Planning in Single Ventricles*

10:20-10:40: **William Decampoli** (Orlando Health) - *Can the Fontan Circulation Assist Itself?*

<b>10:40 – 11:00</b>	<b>Coffee Break</b>
----------------------	---------------------

<b>11:00 – 12:20</b>	<b><u>Technical Session #2: Mechanical Circulatory Support in CHD and Uses in the ICU/OR</u></b>
----------------------	--

Session Chair: **Keefe Manning** (Penn State)

11:00-11:20: **Salim Olia** (Pitt) - *The Pediaflow Pediatric VAD: Past, Present And Future Efforts Toward Clinical Use*

11:20-11:40: **Amy Throckmorton** (Drexel) - *Versatile Dual Pump Mechanical Circulatory Support Devices for Pediatric Patients*

11:40-12:00: **Matt O'Connor** (CHOP) - *Ventricular Assist Devices in Pediatric Patients: A Clinician's Perspective*

	12:00-12:20: <b>Ray Prather</b> (Arnold Palmer) - <i>A Comparison of Embolization Rates Using Patient Specific Geometries Implementing Steady and Unsteady Multi-Scale Modelling</i>
12:20 – 13:15	<b>Lunch Break and Poster Session</b>
13:15 – 13:45	<b>Keynote Address:</b> <b>Sitaram Emani</b> (Boston Children's Hospital) <i>Surgical Planning for Single Ventricle Procedures</i> Introduction: <b>Mark Fogel</b> (CHOP)
13:45 – 15:25	<b>Technical Session #3: Pediatric Tissue Engineering</b> Session Chair: <b>Gail Pearson</b> (NHLBI)
	13:45-14:05: <b>Chris Breuer</b> (Nationwide Children's Hospital) - <i>Growth and Remodeling in Tissue Engineered Vascular Grafts</i>
	14:05-14:25: <b>Jay Humphrey</b> (Yale) - <i>Computational Model-Driven Design of Tissue Engineered Grafts for Fontan Surgery</i>
	14:25-14:45: <b>Sung Kang</b> (Johns Hopkins) - <i>Bioinspired Growing RV-PA Conduits for Pediatric Patients with Congenital Heart Defects</i>
	14:45-15:05: <b>Mike Davis</b> (Emory University) - <i>Creation of a 3D Printed Tissue-Engineered Aortic Valve</i>
15:05 – 15:20	<b>Coffee Break</b>
15:20 – 16:35	<b>Technical Session #4: Young Investigator Program</b> Session Chair: <b>Ajit Yoganathan</b> (Georgia Tech)
	15:20-15:35: <b>Erica Schwarz</b> (Stanford) - <i>Quantifying Energy Loss, Growth, And Remodeling in Fontan Patients with Tissue Engineered Vascular Grafts</i>
	15:35-15:50: <b>Victoria Ordonez</b> (Bristol) - <i>Pregnancy Leads to Incomplete Reverse Ventricular Remodeling in Patients with Tetralogy of Fallot</i>
	15:50-16:05: <b>Ryan Pewowaruk</b> (Wisconsin - Madison) - <i>Preclinical Assessment of Early Catheter Interventions for Pulmonary Artery Stenosis and Virtual Intervention Planning</i>
	16:05-16:20: <b>Alessandro Caimi</b> (Milano) - <i>Feasibility of Percutaneous Pulmonary Valve Implantation in Borderline Patients</i>
	16:20-16:35: <b>Bryan Good</b> (Penn State) - <i>Computational Modeling of a Centrifugal Blood Pump for Failing Fontan Patients</i>
16:35 – 18:10	<b>Debates:</b> (45 minutes each)  1. <i>Pediatric Class III Cardiovascular Devices: Are They Commercially Viable?</i> PRO: <b>Harvey Borovetz</b> (Pitt)

	<p>CON: <b>Bartley Griffith</b> (Maryland-Baltimore)</p> <p>2. <i>Computational Fluid Dynamics Will Never Come Into Routine Clinical Use.</i>          PRO: <b>Alain Kassab</b> (UCF); <b>Irene Vignon-Clementel</b> (INRIA)          CON: <b>Jack Rome</b> (CHOP); <b>Dave Nykanen</b> (Orlando)</p> <p>Panel Moderator: <b>Mark Fogel</b> (CHOP)</p>
18:10 – 19:25	<b>Hors d'oeuvres and Drinks, Poster Session and Poster Judging</b>
	<b>Dinner - on your own</b>

## Saturday, May 11, 2019

07:00 – 08:00	<b>Conference Registration and Continental Breakfast</b>
08:00 – 08:15	<b>Announcements</b>
08:15 – 09:55	<p><b>Technical Session #5: Thrombosis and Hematology in Congenital Heart Disease</b>          Session Chair: <b>Harvey Borovetz</b> (Pitt)</p> <p>8:15-8:35: <b>Therese Giglia</b> (CHOP) - <i>The Challenge of Thrombosis in Pediatric and Congenital Heart Disease</i></p> <p>8:35-8:55: <b>Vijay Govindarajan</b> (Boston Children's Hospital) - <i>Investigating the Propensity of Thrombus Formation Post-Fontan: A Patient-specific Computational Fluid Dynamic Modeling Study</i></p> <p>8:55-9:15: <b>Ashley Brown</b> (UNC) - <i>Investigating the Influence of Pro-Coagulant Agents on Neonatal Fibrin Network Properties Following Cardiopulmonary Bypass</i></p> <p>9:15-9:35: <b>Prashant Purohit</b> (UPenn) - <i>Compression Response of Blood Clots Modeled as a Phase Transition</i></p> <p>9:35-9:55 <b>Keefe Manning</b> (Penn State) - <i>Working Towards Thrombosis Modeling and Embolization Prediction</i></p>
9:55 – 10:10	<b>Coffee Break</b>
10:10 – 11:50	<p><b>Technical Session #6: Imaging</b>          Session Chair: <b>Kevin Whitehead</b> (CHOP)</p> <p>10:10-10:30: <b>Alejandro Roldan-Alzate</b> (Wisconsin) - <i>In Vitro Patient Specific Assessment of CHD using 3D Printing and 4D Flow MRI</i></p> <p>10:30-10:50: <b>Vivek Muthurangu</b> (UCL) - <i>Deep Learning Reconstruction for CMR in Congenital Heart Disease - Towards Clinical Translation</i></p> <p>10:50-11:10: <b>Paul Stephens</b> (CHOP)</p>

	11:10-11:30: <b>Giovanni Biglino</b> (Bristol) - <i>Merging Cardiovascular Magnetic Resonance Imaging and Digital Animation to Represent Narratives of Congenital Heart Disease</i>
	11:30-11:50: <b>Petter Frieberg</b> (Skane) - <i>Same-Day CMR and Pre-Operative Predictive Simulation Of Fontan Pulmonary Blood Flow</i>
<b>11:50 – 12:25</b>	<b>Keynote Address: William Weiss</b> (Penn State) <i>Pediatric Mechanical Circulatory Support</i> Introduction: <b>Keefe Manning</b> (Penn State)
<b>12:30 – 13:30</b>	<b>Lunch</b>
<b>13:30 – 14:50</b>	<b>Technical Session #7: Coarctation/Tetralogy of Fallot/Norwood</b> Session Chair: <b>Alison Marsden</b> (Stanford)
	13:30-13:50: <b>Amanda Randles</b> (Duke) - <i>Exploring How Blood Flow Parameters Influence Hemodynamics in Congenital Heart Disease with Simulation and Machine Learning</i>
	13:50-14:10: <b>Kevin Whitehead</b> (CHOP) - <i>Anatomical and Physiological Assessment of Congenital and Acquired Aortopulmonary Collaterals</i>
	14:10-14:30: <b>Arash Ghorbanniahassankiadeh</b> (Marquette) - <i>Coarctation Induced Mechanical Changes in Proximal and Distal Aorta from an Experimental Model Mimicking the Clinical Condition</i>
	14:30-14:50: <b>Nicole Schiavone</b> (Stanford) - <i>In Vitro Assessment of Bioprosthetic Valve Hemodynamics in Children with Tetralogy of Fallot</i>
<b>14:50 – 16:10</b>	<b>Technical Session #8: Pediatric Cardiovascular Devices</b> Session Chair: <b>William Decampoli</b> (Orlando Health)
	14:50-15:10: <b>Nicole Ibrahim</b> (FDA) - <i>Pediatric Medical Device Regulation: Challenges and Opportunities</i>
	15:10-15:30: <b>Gail Pearson</b> (NIH) - <i>The Pediatric Heart Network: One Model for Collaborative Research</i>
	15:30-15:50: <b>Matt Maltese</b> (UPenn Pediatric Consortium) - <i>Innovation Opportunities in Medical Device Development</i>
	15:50-16:10: <b>TY Hsia</b> (Yale) - <i>Lessons from a Transatlantic Consortium</i>
<b>16:10 – 16:25</b>	<b>Coffee Break</b>
<b>16:25 – 17:35</b>	<b>Technical Session #9: Artificial Intelligence and 3D Printing</b> Session Chair: <b>Alan Wei</b> (Georgia Tech)
	16:25-16:35: <b>Paris Perdikaris</b> (UPenn) - <i>Machine learning for cardiovascular flows modeling and simulation</i>

16:35-16:55: **Justin Ryan** (Phoenix Children's Hospital) - *Review of 3D Printing Programs within Two Mid-Sized Institutions: Outcomes and Impact*

16:55-17:15: **Cynthia Sung** (UPenn) - *Leveraging Digital Fabrication for Custom Robotics On-Demand*

17:15-17:35: **Katrina Ruedinger** (Wisconsin-Madison) - *Advancements to A 3D Printed Patient-Specific Fetal Heart Model Creates Realistic Intra-Cardiac Flow Distributions*

**17:40 – 18:40**

**Steering Committee Meeting**