

# State-of-the-Art ECHOCARDIOGRAPHY

# 31<sup>st</sup> ANNUAL



## ADVANCE PROGRAM

**February 17 – 20, 2018**

*Optional Learning Lab*

February 16–17, 2018

**Paradise Point Resort & Spa  
San Diego, CA**

## NEW LOCATION, Same Great Course!

### Course and Learning Lab Director

Bijoy K. Khandheria, MD, FASE  
Past President, ASE  
Aurora Health Care  
Milwaukee, WI

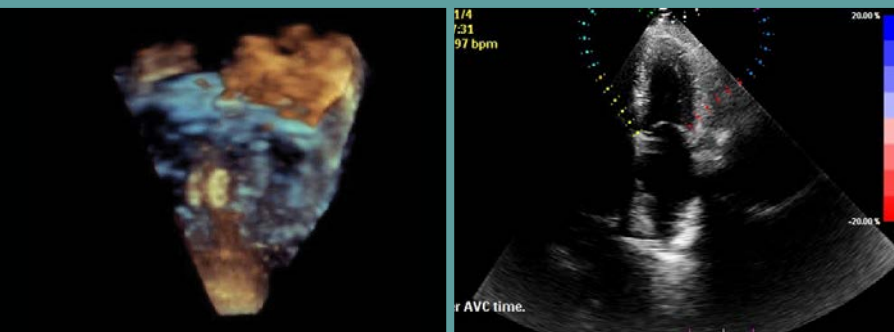
### Course Co-Director

William A. Zoghbi, MD, FASE  
Past President, ASE  
Houston Methodist Hospital  
Houston, TX

### Learning Lab Co-Director

Roberto M. Lang, MD, FASE  
Past President, ASE  
University of Chicago Medical Center  
Chicago, IL

**Case-based Approach to Clinical Echocardiography  
Incorporate New Guidelines into Clinical Practice**



Register now at [ASEcho.org/SOTA](http://ASEcho.org/SOTA)



Jointly Provided by ASE and the ASE Foundation

# Program Information

## Overview of State-of-the-Art Echocardiography

This premier educational program from the American Society of Echocardiography is its 31st year. In 2018, this well-established course is moving from its traditional home in Arizona to beautiful San Diego, California.

This year's program follows the themes of structural heart disease, myocardial and pericardial disease, coronary artery disease, and interventional echocardiography. During the course over 100 cases will be presented by the expert faculty to highlight what echo brings to each theme, help clinicians recognize and avoid common errors and pitfalls, and how to apply the guidelines in a practical manner. Workshops on TAVR and TMVR, the two emerging therapeutic approaches for valvular heart disease, will be a highlight of this course.

The faculty consists of recognized leaders in the field of echocardiography acclaimed for their teaching abilities. Participants will have the opportunity to interact with the faculty one-on-one in the Computer-Based Learning Lab featuring advanced hemodynamics, 3D, and myocardial strain imaging including plenty of case studies to practice. Live imaging demonstrations will focus on acquisition techniques for 3D and myocardial strain imaging.

## TAVR and TMVR Workshop

A transcatheter aortic and mitral valve replacement workshop on Saturday afternoon offers an in-depth exploration of the use of echocardiographic imaging in valve disease. As patients become more familiar with valve disease and intervention and more centers are performing these complicated procedures, it is important for practitioners to become more comfortable with diagnosis, intervention, and monitoring.

## Learning Lab Session *(Additional Fee Required)*

A learning lab will be offered for a full day on Friday, February 16 and a half day on Saturday, February 17, 2018. Separate registration is required and this session is included in the total hours of educational content offered at the course.

Limited to 80 registrants, this intimate workshop allows easy access to faculty members. Individual computer workstations are provided to teach each participant how to quantitate fundamental aspects of clinical echocardiography. The small group environment allows the opportunity for nearly private instruction from top practitioners in the field.

## Who Should Attend

State-of-the-Art Echocardiography's program is designed for adult and pediatric cardiologists, cardiovascular surgeons, anesthesiologists, radiologists, nurses, sonographers, and fellows in training. Participants should have a practical knowledge of echocardiography.

## Course Registration

Registration fees include breakfasts, lunches, breaks, the networking reception, access to course materials, and CME credits and MOC points. ASE members take advantage of reduced registration fees as a benefit of membership. Register online at [ASEcho.org/SOTA](http://ASEcho.org/SOTA).

## ASE Membership

Nonmember registrants for the 31st Annual State-of-the-Art Echocardiography course will receive a complimentary ASE membership through December 31, 2018, with their registration. This membership is only available to those who have never been a member of ASE. ASE serves its members in numerous ways by providing education, advocacy, research, practice guidelines, and a community for their profession. ASE membership includes over \$750 of FREE CME credits a year, in addition to discounts on all ASE educational courses and products. Also included is a monthly subscription to the *Journal of the American Society of Echocardiography* (JASE), help with legislative coding and reimbursement issues, and other career resources. A plethora of online tutorials, webinars, and other educational activities make membership beneficial to echocardiographers located around the world. View the extensive list of member benefits at [ASEcho.org](http://ASEcho.org).

## Learning Objectives

Upon completion of this course, participants will be better able to:

- Incorporate state-of-the-art clinical applications of echocardiography and Doppler ultrasound into clinical decision-making
- Utilize echocardiography in valvular heart disease
- Evaluate patients prior to, during, and following various structural heart disease procedures such as TAVR, mitral clip, and left atrial appendage closure
- Perform a 3D acquisition and measurement of biventricular size and function; and have a better understanding of the "knobology"
- Explain the new diastolic function guidelines
- Assess left ventricular function with state-of-the-art echocardiographic technology including strain imaging



## Accreditation and Designation

The American Society of Echocardiography is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. The American Society of Echocardiography designates this live activity for a maximum of 33.5 *AMA PRA Category 1 Credits*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity. Successful completion of this CME activity enables the participant to earn up to 33 MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. Participants will earn MOC points equivalent to the amount of CME credits claimed for the activity.



## San Diego

California's second largest city and the United States' eighth largest, San Diego is renowned for its idyllic climate, 70 miles of pristine beaches, and a dazzling array of world-class family attractions. Popular attractions include the world-famous San Diego Zoo and San Diego Zoo Safari Park, SeaWorld San Diego, and LEGOLAND California. With an average temperature of 72 degrees year-round, San Diego offers an expansive variety of things to see and do, appealing to guests of all ages from around the world.

## Paradise Point Resort & Spa

Paradise Point, San Diego's island resort, is a private 44-acre island tucked away on gentle Mission Bay, minutes from the heart of downtown San Diego. The California beach bungalow-style guest rooms amidst lush, tropical gardens, and meandering lagoons is the perfect Southern California resort. You are sure to relax comfortably in the tranquil bayside bungalows, featuring breezy patios with striking views.

Paradise Point features one mile of sandy beach next door to SeaWorld. Scattered across the island, you will find plenty to do with five swimming pools, beach bonfire pits, a marina, five dining venues, and an award-winning spa.

ASE has secured a block of rooms at a rate of \$234 a night. Rooms reserved in the ASE room block will receive the Passport to Paradise, a resort value program that includes high-speed wireless or hard-wired guest room internet, unlimited use of the fitness center, all local and domestic phone calls, and use of guest recreation items such as bocce ball, tennis, basketball, horseshoes, croquet, and ping pong. To make your reservations, please call 800-344-2626 before January 9 to get this special price and the Passport to Paradise.

## Networking Reception

ASE cordially invites you and your guests to the 31st Annual State-of-the-Art of Echocardiography Attendee Reception on Monday evening, February 19. This casual reception offers you the perfect opportunity to meet faculty, and visit with exhibitors, friends, and colleagues.



## Course and Learning Lab Director

**Bijoy K. Khandheria, MD, FASE**  
 Past President, ASE  
 Aurora Health Care  
 Milwaukee, WI

## Course Co-Director

**William A. Zoghbi, MD, FASE**  
 Past President, ASE  
 Houston Methodist Hospital  
 Houston, TX

## Learning Lab Co-Director

**Roberto M. Lang, MD, FASE**  
 Past President, ASE  
 University of Chicago Medical Center  
 Chicago, IL

## Faculty

**Jeroen J. Bax, MD, PhD**  
 Leiden University Medical  
 Leiden, Netherlands

**Anthony N. DeMaria, MD, FASE**  
 Past President, ASE  
 University of California San Diego  
 La Jolla, CA

**Rebecca T. Hahn, MD, FASE**  
 Columbia University Medical Center  
 New York, NY

**Judy W. Hung, MD, FASE**  
 Massachusetts General Hospital  
 Boston, MA

**Chris J. Kramer, ACS, RDCS, FASE**  
 Aurora Health Care  
 Milwaukee, WI

**Eric Kruse, RDCS, RVT, FASE**  
 University of Chicago Medical Center  
 Chicago, IL

**Steven J. Lester, MD, FASE**  
 Mayo Clinic Arizona  
 Scottsdale, AZ

**Stephen H. Little, MD, FASE**  
 Houston Methodist Hospital  
 Houston, TX

**Raj Makkar, MD**  
 Cedars-Sinai Medical Center  
 San Diego, CA

**Vera H. Rigolin, MD, FASE**  
 President, ASE  
 Northwestern Medicine  
 Chicago, IL

**David R. Rubenson, MD, FASE**  
 Scripps Clinic  
 San Diego, CA

**Muhamed Saric, MD, PhD, FASE**  
 New York University  
 New York, NY

**Matt M. Umland, ACS, RDCS, FASE**  
 Aurora Health Care  
 Milwaukee, WI

## Associate Faculty

**Denise Ignatowski, BS, RDCS**  
 Aurora Health Care  
 Milwaukee, WI

**Sarah M. Roemer, BS, RDCS**  
 Aurora Health Care  
 Milwaukee, WI

## FRIDAY, FEBRUARY 16, 2018

7:00 AM	<b>Registration and Breakfast</b>
<b>LEARNING LAB</b> ( <i>additional fee required</i> ) Chairs: <i>B. Khandheria, R. Lang</i>	
8:00 AM	<b>Introduction to Learning Lab and Computers</b> <i>B. Khandheria, R. Lang, M. Umland</i>
8:30 AM	<b>Chamber Quantification Guidelines: Left Ventricle, Left Atrial, Right Ventricle</b> <i>D. Ignatowski, E. Kruse, R. Lang, S. Roemer</i>
10:00 AM	<b>Refreshment Break</b>
10:15 AM	<b>Advanced Hemodynamics including Diastolic Function and Speckle</b> <i>B. Khandheria, C. Kramer, M. Umland</i>
12:15 PM	<b>Lunch for Learning Lab Attendees</b>
1:15 PM	<b>Myocardial and Pericardial Disease</b> <i>B. Khandheria, C. Kramer, M. Umland</i>
2:45 PM	<b>Refreshment Break</b>
3:00 PM	<b>4D - Basic Acquisition, Cropping, and Optimization</b> <i>C. Kramer, E. Kruse, R. Lang</i>
4:30 PM	<b>Case Studies</b> <i>D. Ignatowski, B. Khandheria, C. Kramer, E. Kruse, R. Lang, S. Roemer, M. Umland</i>
5:00 PM	<b>Adjourn</b>

## SATURDAY, FEBRUARY 17, 2018

7:00 AM	<b>Registration and Breakfast</b>
<b>LEARNING LAB</b> ( <i>additional fee required</i> ) Chairs: <i>B. Khandheria, R. Lang</i>	
8:00 AM	<b>Valvular Stenosis: How to Measure and Avoid Errors</b> <i>B. Khandheria, C. Kramer, S. Roemer</i>
9:30 AM	<b>Valvular Regurgitation: Effective Regurgitant Orifice Area, Etiology</b> <i>D. Ignatowski, R. Lang, M. Umland</i>
10:45 AM	<b>Refreshment Break</b>
11:00 AM	<b>Right Heart: Tricuspid Annular Plane Systolic Excursion, Strain, Pulmonary Artery Pressure</b> <i>B. Khandheria, C. Kramer, S. Roemer</i>
12:00 PM	<b>Question and Answer</b>
12:15 PM	<b>Lunch for Learning Lab Attendees</b>

## MAIN CONFERENCE

### OPENING SESSION: DIASTOLIC FUNCTION, PERICARDIAL DISEASE

Moderators: *J. Hung, S. Lester*

1:00 PM	<b>Welcome</b> <i>B. Khandheria, W. Zoghbi</i>
1:15 PM	<b>President's Welcome</b> <i>V. Rigolin</i>
1:30 PM	<b>Case Studies: Applying New ASE Guidelines</b> <i>W. Zoghbi</i>

1:50 PM	<b>Case Studies: Where It Fails or Does It?</b> <i>S. Lester</i>
2:10 PM	<b>Case Studies: Constrictive Pericarditis</b> <i>B. Khandheria</i>
2:30 PM	<b>Case Studies: Pericardial Effusion, Fat Pad</b> <i>J. Hung</i>
2:50 PM	<b>Question and Answer</b>
3:00 PM	<b>Refreshment Break and Visit Exhibits</b>

3:30 PM	<b>Pre-Procedure TAVR Workshop</b> Moderators: <i>M. Saric, M. Umland</i>
	<b>Case Examples: IntraProcedure TEE</b> <i>R. Hahn, M. Saric</i>
	<b>Case Studies: Evaluating Paravalvular Leak Post Procedure</b> <i>S. Little, D. Rubenson</i>
	<b>Complications from Other Labs!</b> <i>M. Saric</i>
	<b>Pre TAVR Measurements, Post TAVR Evaluation: What is a Sweep? What to Report? How to Measure.</b> <i>D. Ignatowski, C. Kramer, S. Roemer</i>
5:45 PM	<b>Adjourn</b>

## SUNDAY, FEBRUARY 18, 2018

7:00 AM	<b>Registration</b>
7:30 AM	<b>Breakfast and Visit Exhibits</b>

### STRUCTURAL HEART DISEASE: AORTIC STENOSIS

Moderators: *J. Bax, R. Hahn*

8:00 AM	<b>Case Studies: Step by Step Evaluation of Aortic Stenosis Using New ASE Guidelines</b> <i>B. Khandheria</i>
8:20 AM	<b>Case Studies: Low Output, Low LVEF, Low Gradient but is it Severe Aortic Stenosis?</b> <i>W. Zoghbi</i>
8:40 AM	<b>Case Studies: Normal LVEF, Severe Aortic Stenosis but Low Gradient: Why Strain Helps</b> <i>S. Little</i>
9:00 AM	<b>Compare and Contrast Guidelines on Both Sides of the Pond. Does it Really Matter? Make it Simple</b> <i>J. Bax</i>
9:20 AM	<b>TAVR is Here to Stay but for Whom? Where's the Data?</b> <i>R. Makkar</i>
9:40 AM	<b>Question and Answer</b>
9:55 AM	<b>Refreshment Break and Visit Exhibits</b>

### STRUCTURAL HEART DISEASE: AORTIC REGURGITATION

Moderators: *S. Little, W. Zoghbi*

10:25 AM	<b>Case Studies: ASE Guideline on Severity of Aortic Regurgitation. What Do I Measure?</b> <i>W. Zoghbi</i>
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10:45 AM	<b>Common Errors to Avoid, Sonographers Pay Attention. Readers Watch Out!</b> <i>M. Umland</i>
11:05 AM	<b>Case Studies: Morphology of Aortic Regurgitation, Bicuspid Aortic Valve</b> <i>B. Khandheria</i>
11:25 AM	<b>Unusual Causes of Aortic Regurgitation: Aortitis, Liebman Sach, Root + Valve</b> <i>J. Hung</i>
11:45 AM	<b>Question and Answer</b>
12:05 PM	<b>Lunch and Visit Exhibits</b>

### STRUCTURAL HEART DISEASE: TRICUSPID VALVE

Moderators: *C. Kramer, R. Lang*

1:05 PM	<b>Imaging the Tricuspid Valve</b> <i>R. Lang</i>
1:25 PM	<b>Percutaneous Tricuspid Valve: Multimodality Imaging</b> <i>J. Bax</i>
1:45 PM	<b>Case Studies: Common Tricuspid Valve Lesions</b> <i>C. Kramer</i>
2:10 PM	<b>Question and Answer</b>
2:20 PM	<b>Refreshment Break and Visit Exhibits</b>

### STRUCTURAL HEART DISEASE: MITRAL REGURGITATION

Moderators: *R. Lang, M. Umland*

2:50 PM	<b>Case Studies: You Want What? Here is What I Can Provide in Intraprocedural TEE/TTE During TAVR</b> <i>V. Rigolin</i>
3:10 PM	<b>Case Studies: Morphology of Aortic Regurgitation, Root Involvement</b> <i>V. Rigolin</i>
3:30 PM	<b>Case Studies: Quantification of Severity of Mitral Regurgitation with New ASE Guidelines</b> <i>W. Zoghbi</i>
3:45 PM	<b>Morphology of the Mitral Valve: 2D, 3D, 4D</b> <i>R. Lang</i>
4:00 PM	<b>Case Studies: Mitral Valve Causing Mitral Regurgitation: MVP, Flail Mitral Valve, Degenerative MR</b> <i>J. Hung</i>
4:15 PM	<b>Case Studies: Pickelhaube Sign in Mitral Valve Prolapse</b> <i>D. Ignatowski</i>
4:30 PM	<b>Transcatheter Mitral Valve Repair: State of the Art 2018</b> <i>R. Makkar</i>
4:45 PM	<b>Case Studies: Mitral Stenosis, Many Flavors, Rheumatic, Calcification</b> <i>D. Rubenson</i>
5:00 PM	<b>Hypereosinophilia and Mitral Valve, Parachute Mitral Valve, Arcade</b> <i>M. Umland</i>



# Schedule of Events

5:15 PM	<b>Case Studies: Percutaneous Mitral Valve for Calcific Disease</b> <i>M. Saric</i>
5:30 PM	<b>Question and Answer</b>
5:45 PM	<b>Adjourn</b>

## MONDAY, FEBRUARY 19, 2018

6:45 AM **Registration**  
**Breakfast and Visit Exhibits**

### SONOGRAPHERS WORKSHOP: 3D/4D, VALVES, STRAIN

7:45 – 10:45 AM **How To Acquire and Measure 3D/4D, Valves, Strain**  
*D. Ignatowski, C. Kramer, E. Kruse, S. Roemer*

### STRUCTURAL HEART DISEASE: LEFT ATRIAL APPENDAGE CLOSURE, PFO CLOSURE

Moderators: *D. Rubenson, M. Saric*

8:00 AM	<b>Case Studies: Left Atrial Appendage, Thrombus, Spontaneous Echo, Contrast</b> <i>D. Rubenson</i>
8:20 AM	<b>Left Atrial Appendage Occlusion in the Era of Novel Oral Anticoagulants</b> <i>R. Makkar</i>
8:40 AM	<b>Case Studies: Role of TEE in Left Atrial Appendage Occluder Device Placement (Pre and Intraprocedure)</b> <i>B. Khandheria</i>
9:00 AM	<b>Case Studies: Oops, What Went Wrong Here? Thrombus On or Leak Around the Device?</b> <i>M. Saric</i>
9:20 AM	<b>Patent Foramen Ovale: Diagnosis and Treatment: Master Clinician and Former Editor Perspective</b> <i>A. DeMaria</i>
9:45 AM	<b>Case Studies: 2D/3D TEE in Evaluation of Atrial Septum</b> <i>R. Lang</i>
10:05 AM	<b>Case Studies: Closure of Paravalvular Regurgitation</b> <i>R. Hahn</i>
10:25 AM	<b>Question and Answer</b>
10:45 AM	<b>Refreshment Break and Visit Exhibits</b>

### CORONARY ARTERY DISEASE

Moderators: *J. Hung, S. Lester*

11:15 AM	<b>Regional Wall Motion Abnormality: I Present, You Diagnose</b> <i>S. Little</i>
11:35 AM	<b>Case Studies: Complications of Myocardial Infarction</b> <i>J. Hung</i>
11:55 AM	<b>Myocardial Contrast Echocardiography: State-of-the-Art 2018</b> <i>A. DeMaria</i>
12:15 PM	<b>Case Studies: Contrast Enhanced Imaging</b> <i>W. Zoghbi</i>
12:30 PM	<b>Pitfalls: Contrast Enhanced Imaging</b> <i>S. Lester</i>

12:45 PM	<b>Question and Answer</b>
1:00 PM	<b>Lunch and Visit Exhibits</b>

### MYOCARDIAL DISEASE, CARDIOMYOPATHY

Moderators: *B. Khandheria, S. Little*

2:00 PM	<b>Hypertrophic Cardiomyopathy: State-of-the-Art 2018</b> <i>B. Khandheria</i>
2:20 PM	<b>Variants of Hypertrophic Cardiomyopathy: Lateral Wall, Hypertrophy Papillary Muscle, Mid Ventricular</b> <i>S. Lester</i>
2:40 PM	<b>Case Studies: Thick Walls, Is this Hypertrophic Cardiomyopathy?</b> <i>M. Umland</i>
3:00 PM	<b>Case Studies: Athlete's Heart</b> <i>R. Lang</i>
3:20 PM	<b>Case Studies in Systemic Illness and the Heart: Sarcoid, Hemachromatosis, Hypereosinophilia</b> <i>M. Saric</i>
3:40 PM	<b>Right Ventricular Dysplasia, Right Ventricular Hypertrophy Due To Pulmonary Hypertension</b> <i>S. Little</i>
4:00 PM	<b>Common Adult Congenital Heart Disease: Atrial Septal Defect, Ventricular Septal Defect, Ebstein</b> <i>M. Saric</i>
4:30 PM	<b>Question and Answer</b>
4:45 – 5:45 PM	<b>Member Reception</b>

## TUESDAY, FEBRUARY 20, 2018

7:00 AM **Registration**  
7:30 AM **Breakfast and Visit Exhibits**

### POTPOURRI

Moderator: *S. Little*

8:00 AM	<b>Cardio-Oncology: 2018</b> <i>J. Hung</i>
8:20 AM	<b>Sonographer's Guide to Evaluation of Right Ventricle in Pulmonary Hypertension</b> <i>S. Roemer</i>
8:40 AM	<b>Case Studies: Endocarditis</b> <i>S. Little</i>
9:00 AM	<b>Case Studies: Disease of Aorta: Marfan, Dissection, Aortic Atheroma</b> <i>M. Saric</i>
9:20 AM	<b>Refreshment Break and Visit Exhibits</b>
9:50 AM	<b>Case Studies: LVAD</b> <i>C. Kramer</i>
10:10 AM	<b>Case Studies: LVNC</b> <i>M. Umland</i>
10:30 AM	<b>Closing Remarks</b> <i>B. Khandheria, W. Zoghbi</i>
11:00 AM	<b>Adjourn</b>

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Name: \_\_\_\_\_

FIRST NAME

MIDDLE INITIAL

LAST NAME

Credential:  MD  DO  PhD  RN  RCS  RDCS  Other

Institution: \_\_\_\_\_

Email Address: \_\_\_\_\_

(ALL CORRESPONDENCE REGARDING YOUR REGISTRATION INCLUDING YOUR CONFIRMATION WILL BE SENT TO THIS EMAIL ADDRESS.)

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State/Province: \_\_\_\_\_ Zip/Postal Code: \_\_\_\_\_ Country: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

ASE encourages participation by all individuals. If you have a disability or other specific needs, including dietary, advance notification will help ASE better serve you. Please contact ASE by email at [SOTA@asecho.org](mailto:SOTA@asecho.org) or telephone at 919-861-5574.

## Registration Fees: Please circle the registration type you would like to purchase.

	Through January 17, 2018	After January 17, 2018
ASE Physician Member	\$775	\$875
Physician Nonmember*	\$925	\$1,025
ASE Sonographer/Allied Health Member/Fellow Member	\$575	\$675
Sonographer/Allied Health Nonmember/Fellow Nonmember*	\$725	\$825
One-day Rate: (only one day can be selected) Saturday, Sunday, Monday, Tuesday	\$250	
<b>Preconference Optional Session Fees</b> Attendees must register for this workshop in advance in order to attend due to limited seating available.		<b>ASE Member</b> <b>Nonmember</b>
Learning Lab: February 16-17, 2018	\$450	\$550

\* This registration fee includes ASE membership through December 31, 2018. Membership is only available to those who have never been a member of ASE.

## Payment Information Payment must accompany this form.

Check (payable to American Society of Echocardiography in U.S. dollars drawn on a U.S. bank)

Credit Card:  Visa  MasterCard  American Express

Cardholder's Name: \_\_\_\_\_

Card Number: \_\_\_\_\_ Expiration Date: \_\_\_\_\_ CVC #: \_\_\_\_\_

Registration cancellation fees may apply and ASE reserves the right to determine if a refund is possible. Please see the full cancellation policy online at [ASEcho.org/SOTA](http://ASEcho.org/SOTA).

AMERICAN SOCIETY OF ECHOCARDIOGRAPHY INC, P.O. Box 890082, Charlotte, NC 28289-0082

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# ASE Foundation

American Society of Echocardiography  
2100 Gateway Centre Blvd.  
Suite 310  
Morrisville, NC 27560

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