

**14<sup>th</sup> Experts Live CTO**  
The annual Euro CTO meeting

**Final Program**

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**September**  
**2<sup>nd</sup> – 3<sup>rd</sup>, 2022**

**Mainz, Germany**

Join: on-site  
or online  
In cooperation  
with AGIK

**Course Directors**

Gerald S. Werner, Darmstadt, Germany  
Kambis Mashayekhi, Lahr, Germany  
Alexander Bufe, Krefeld, Germany  
Thomas Schmitz, Essen, Germany (AGIK)

**Course Co-Directors**

Zisis Dimitriadis, Frankfurt, Germany  
Alexander Ghanem, Hamburg, Germany (AGIK)

**ECC President**

Carlo Di Mario, Florence, Italy

In cooperation with the German  
members of the **EURO CTO Club**



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## WELCOME TO MAINZ

### Course Directors



**Gerald Werner,**  
Darmstadt, Germany



**Kambis Mashayekhi,**  
Lahr, Germany



**Alexander Bufe,**  
Krefeld, Germany



**Thomas Schmitz,**  
Essen, Germany (AGIK)

### Dear colleagues and friends,

Over the past two years, we have been in the grip of a pandemic that has changed the landscape of medical conferences, training, and interaction. The Euro CTO club successfully conducted the annual meetings despite these restrictions in 2020 and 2021, and looks forward to the 14th edition of our meeting in 2022. As in the previous meetings, the appeal to interventional cardiologists will be further extended beyond Europe by combining the live feeling of an on-site meeting with advanced, web-based interaction around the globe.

The 2022 edition will be conducted in close collaboration with the German Working Group on Interventional Cardiology of the German Cardiac Society (AGIK). Together we will focus on presenting live case transmissions performed by world-renowned surgeons, as well as on a structured guide from basic to advanced techniques for beginners and those who want to perfect their skills, to illustrate advancements in CTO recanalisation techniques while enriching the discussion in an interactive way. The focus of these educational presentations will be to illustrate the steps required to build a CTO program, and select the right patients, technique, and strategy.

### Course Co-Directors



**Zisis Dimitriadis,**  
Frankfurt, Germany



**Alexander Ghanem,**  
Hamburg, Germany (AGIK)



**Carlo Di Mario,**  
Florence, Italy

This will be complemented by simulators provided by our industry partners who showcase their latest product developments. Aside from the practical demonstration of techniques, we also provide an interactive forum to present cases by the participants in a challenging case contest hosted by the Board of the Euro CTO club.

We look forward to meeting all of you in Mainz on the banks of the river Rhine close to Frankfurt International Airport.

**Gerald Werner, Kambis Mashayekhi, Alexander Bufe, Thomas Schmitz**  
Course Directors

**Zisis Dimitriadis, Alexander Ghanem,**  
Course Co-Directors

**Carlo Di Mario**  
Euro CTO Club President

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PUSHING BOUNDARIES



14<sup>th</sup> Experts Live CTO

## GENERAL INFORMATION

14<sup>th</sup> Experts Live CTO  
September 2<sup>nd</sup>–3<sup>rd</sup>, 2022  
Mainz, Germany

**Venue**  
Rheingoldhalle  
Rheinstraße 66 | 55116 Mainz, Germany

**Language**  
The official language of the congress is English. No simultaneous interpreting is available.

**Certificate of Attendance**  
The Certificate of Attendance will be available on-site at the registration desk. The meeting will be accredited by the European Board of Accreditation in Cardiology (EBAC).

**Registration**

Regular:	700.00 €
Fellow:	400.00 €

(physicians in education/training)

Livestream regular:	99.00 €
Livestream fellow:	49.00 €

**Registration fee includes**

- Admission to the Scientific Sessions
- Catering during the breaks
- Certificate of attendance
- VAT

**Schedule**

**Thursday, September 1<sup>st</sup>, 2022**  
Registration is open 17:00–19:00

**Friday, September 2<sup>nd</sup>, 2022**  
Registration is open 07:30–20:00  
1<sup>st</sup> day of the meeting 08:30–18:00  
Congress Dinner 19:30–23:00

**Saturday, September 3<sup>rd</sup>, 2022**  
Registration is open 06:45–17:30  
2<sup>nd</sup> day of the meeting 08:30–17:00

**Congress Dinner**  
60.00 € incl. VAT/per person  
Friday, September 2<sup>nd</sup>, 2022  
Restaurant “Heilig Geist”, Mainz  
A few tickets are available at the registration desk.

**Hotel reservation**  
There are plenty of hotels around the congress location with different rates. If you need any support, just contact the congress organisation.

**Sponsoring**  
For interests of sponsoring contact  
Stephan Pachner.  
E-mail: [stephan.pachner@wikonect.de](mailto:stephan.pachner@wikonect.de)

**Contact  
Congress Organisation**

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Online registration: [www.eurocto2022.eu](http://www.eurocto2022.eu)





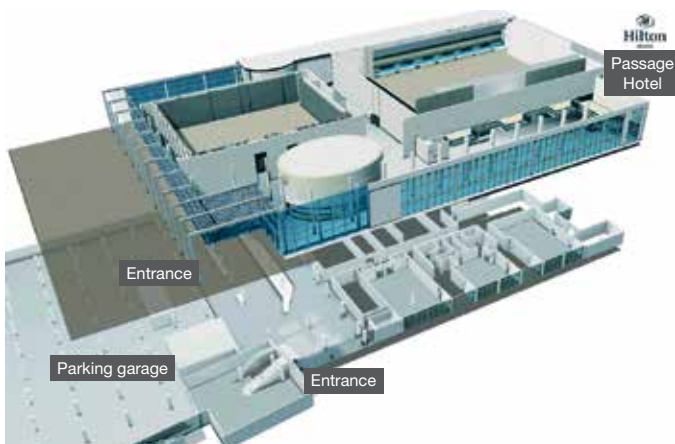
## CONGRESS VENUE

The Rheingoldhalle – central, modern and flexible



Right in the heart of the city, directly on the River Rhine and with direct access to the Hilton Hotel, The Rheingoldhalle with its timeless, modern architecture is the perfect event location. Due to the flexible room layout, the Rheingoldhalle offers a suitable space for every occasion. The large glass fronts of the building offer a fantastic view of the Rhine River and the waterfront.

Rheingoldhalle, Rheinstraße 66, 55116 Mainz (Germany)



## SITE & REACHABILITY

Mainz in the middle of Germany



Destination	Arrival by train	Arrival by plane
Frankfurt am Main	15 min	–
Cologne	1 hr 22 min	–
Stuttgart	1 hr 28 min	1 hr 12 min
Brussels	3 hrs 30 min	1 hr 5 min
Munich	3 hrs 48 min	1 hr 5 min
Hamburg	4 hrs 34 min	1 hr 5 min
Berlin	5 hrs 19 min	1 hr 15 min
Paris	5 hrs 32 min	1 hr 10 min
Dresden	5 hrs 54 min	1 hr 10 min
London	6 hrs 21 min	1 hr 40 min
Rome	16 hrs 35 min	1 hr 45 min



## SCIENTIFIC PROGRAM – PRELIMINARY VERSION

Friday, September 2<sup>nd</sup>, 2022

### Main Session

Room: Auditorium

08:00 – 10:30	<b>Session 1: Selecting the patient and planning the procedure A</b> Chairmen: Carlo di Mario, Florence, Italy; Emanuele Barbato, Aalst, Belgium; Nicolaus Reifart, Königstein, Germany
08:00	<b>Welcome by the Organisers</b>
08:15	<b>Which patient should undergo CTO PCI after the ISCHEMIA trial</b> Emanuele Barbato, Aalst, Belgium
08:30	<b>Live case presentation 1 and 2</b> Discussants: Sergey Furkalo, Kiev, Ukraine; Sevket Görgülü, Istanbul, Turkey; Bertrand Lederman, Nîmes, France
08:40	<b>LIVE CASE 1: presented by Siemens and Osprey Medical</b> Ömer Göktekin, Istanbul, Turkey
08:40	<b>LIVE CASE 2: presented by B.Braun</b> Alfredo Galassi, Palermo, Italy
10:00	<b>Managing radiation for patient and operator safety</b> Gerald S. Werner, Darmstadt, Germany
10:10	<b>Contrast-associated kidney injury – preventive strategies</b> Gabriele Luigi Gasparini, Milan, Italy
10:20	<b>Zero contrast CTO PCI with retrograde approach</b> Prathap Kumar, Kerala, India
10:30	Coffee break and exhibition
11:00 – 13:30	<b>Session 2: Selecting the patient and planning the procedure B</b> Chairmen: Alexander Bufe, Krefeld, Germany; Leszek Bryniarski, Krakow, Poland; Hans Bonnier, Nuënen, Belgium
11:00	<b>Best angiographic projection for collateral analysis</b> Imre Ungi, Szeged, Hungary
11:10	<b>Preprocedural CT – which patient needs it</b> Youssef Abdelwahed, Berlin, Germany
11:20	<b>The patient with severe LV dysfunction</b> Mohamed Ayoub, Bad Oeynhausen, Germany
11:20	<b>Live case presentation 3 and 4</b> Discussants: Nenad Bozinovic, Nis, Serbia; Eugenio La Scala, Six-Fours, France; Rostislav Prog, Kempen, Germany
11:30	<b>LIVE CASE 3: presented by IMDS</b> Alexandre Avran, Valenciennes, France

### AGIK Parallel Session

Room: West-Foyer

09:00 – 10:30	<b>AGIK</b> <b>Session 1: The basics of CTO-PCI</b> Chairmen: Thomas Schmitz, Essen, Germany; Heinz Joachim Büttner, Bad Krozingen, Germany
09:00	<b>Introduction &amp; welcome</b> Thomas Schmitz, Essen, Germany
09:10	<b>Optimal vascular access</b> Alexander Ghanem, Hamburg, Germany
09:30	<b>The 3 “?” of CTO-PCI: When? Why? Who?</b> Alexander Bufe, Krefeld, Germany
09:50	<b>Optimal angiographic views</b> Ioannis Tsilingiris, Essen, Germany
10:10	<b>Optimal planning of CTO-PCI</b> Kambis Masheyekhi, Lahr, Germany
10:30	Coffee break and exhibition
11:00 – 12:30	<b>AGIK</b> <b>Session 2: Essential tools for CTO-PCI</b> Chairmen: Alexander Ghanem, Hamburg, Germany; Luca Grancini, Milan, Italy; Florian Krötz, Starnberg, Germany
11:00	<b>Guidewires – which one in which situation?</b> Erik Rafflenbeul, Hamburg, Germany
11:20	<b>Microcatheters – how to handle?</b> Zisis Dimitriadis, Frankfurt, Germany
11:40	<b>Re-entry devices – essential or not?</b> Jo Dens, Genk, Belgium
12:00	<b>Other dedicated devices</b> Youssef Abdelwahed, Berlin, Germany

## SCIENTIFIC PROGRAM – PRELIMINARY VERSION

### Main Session

Room: Auditorium

11:30	<b>LIVE CASE 4: presented by ASahi</b> Kambis Mashayekhi, Lahr, Germany	
12:50	<b>Publication Review</b> Emmanouil Brilakis, Minneapolis, USA (via Webmeeting)	
13:20	<b>New developments in wire based antegrade approach</b> Abdul Mozid, Leeds, United Kingdom	
	<b>Lunch-Symposium by Philips</b> <b>How to decrease operator dependence on vessel opacification during PCI?</b> <b>A crash course on ultra-low contrast</b> <b>What are the limitations of CTO-PCI?</b> Gerald S. Werner, Darmstadt, Germany	
13:30– 14:15	<b>Case 1 Ultra-low contrast CTO PCI</b> Roberto Garbo, Turin, Italy <b>Case 2 Co-registration with IVUS to minimize contrast use and to optimize CTO PCI</b> Carlo Di Mario, Florence, Italy	
13:30– 14:30	<b>Industry Hands-on Session (Terumo)</b> <b>Planning for success</b> Lecturer: Andrea Gagnor, Turin, Italy	Room: Hands-on 1
13:30– 14:30	<b>Industry Hands-on Session (Teleflex)</b> <b>CTO Simulator &amp; Heart Model</b> Lecturer: Felix Woitek, Dresden, Germany	Room: Hands-on 2
13:30	Lunch break, exhibition	
15:00 – 17:00	<b>Session 3: Advanced antegrade techniques</b> Chairmen: Georgios Sianos, Thessaloniki, Greece; Masahisa Yamane, Sayama City, Japan; Jaroslaw Wójcik, Lublin, Poland	
15:00	<b>Live case presentation 5 and 6</b> Discussants: Sergey Furkalo, Kiev, Ukraine; Ömer Göktekin, Istanbul, Turkey; Artis Kalnins, Riga, Latvia	
15:10	<b>LIVE CASE 5: presented by Terumo</b> Gerald S. Werner, Darmstadt, Germany	
15:10	<b>LIVE CASE 6: presented by Terumo</b> Nicolas Boudou, Bordeaux, France	
16:30	<b>How to overcome proximal cap ambiguity?</b> Roberto Garbo, Turin, Italy	
16:40	<b>Parallel wire: technique, devices, failure mode</b> Leszek Bryniarski, Krakow, Poland	

### AGIK Parallel Session

Room: West-Foyer

12:45 – 13:30	<b>AGIK</b> <b>Special Session: Case of the month Competition</b> Chairmen: Pier Francesco Agostoni, Antwerp, Belgium; Juan Luis Gutiérrez-Chico, Koblenz, Germany
13:30	Lunch break, exhibition
15:00 – 16:30	<b>AGIK</b> <b>Session 3: The 101 of antegrade approach</b> Chairmen: Michael Behnes, Mannheim, Germany; Felix Woitek, Dresden, Germany
15:00	<b>Impulse: How to address CTO and Bifurcation</b> Mohamed Ayoub, Bad Oeynhausen, Germany



2 September 2022 | 13:30 - 14:15 | Auditorium

## How to decrease operator dependence on vessel opacification during PCI?

### A crash course on ultra-low contrast

Speakers: Carlo Di Mario, Gerald Werner, Roberto Garbo

## SCIENTIFIC PROGRAM – PRELIMINARY VERSION

### Main Session

Room: Auditorium

16:50	<b>ADR in 2022 – evolution of device based reentry</b> Dimitrios Karpaliotis, Morristown, USA	
17:00	Coffee break and exhibition	
17:30 – 18:20	<b>Session 4: Antegrade techniques</b> Chairmen: Heinz-Joachim Büttner, Bad Krozingen, Germany; Andrea Gagnor, Turin, Italy	
17:30	<b>IVUS controlled re-entry in antegrade CTO PCI</b> Kenya Nasu, Aichi, Japan	
17:40	<b>Severe angulations including the proximal cap</b> Sevket Görgülü, Istanbul, Turkey	
17:50	<b>Perforations within the subintimal space</b> Andrew Ladwiniec, Leicester, UK	
18:00	<b>Haemodynamic support during CTO PCI</b> Kambis Mashayekhi, Lahr, Germany	
18:10	<b>RV Function after RCA CTO PCI</b> Zisis Dimitriadis, Frankfurt, Germany	
18:20	<b>Closing remarks</b>	
18:20 – 19:20	<b>Session X “General Assembly”</b>	
18:20	<b>Industry Hands-on Session (Terumo) Planning for success</b> Andrea Gagnor, Turin, Italy	Room: Hands-on 1

19:30	<b>Congress Dinner</b> (registration required – places are limited)	
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**Restaurant “Heilig Geist”**  
The Holy Spirit Hospital in Mainz was a charitable medieval hospital foundation for the care of the elderly, the poor and the sick, based on the model of Santo Spirito in Sassia in Rome. The late Romanesque hospital building originally dates back to 1236, making it the oldest community hospital in Germany and one of the oldest hospital buildings in Europe. From 1804 it was used as a warehouse building, correctional institution for young women and a gymnasium, since 1863 it has served as a restaurant.



### AGIK Parallel Session

Room: West-Foyer

15:15	<b>LIAB Antegrade CTO with Bifurcation</b> Alexander Bufe, Krefeld, Germany
15:30	<b>Strategic Planning and Treatment Options: How would I treat</b> Michael Behnes, Mannheim, Germany
15:50	<b>How did I treat</b> Alexander Bufe, Krefeld, Germany
16:10	<b>Keynote: My essential tips &amp; tricks for success in antegrade approach</b> Jan Malte Sinning, Köln, Germany



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## SCIENTIFIC PROGRAM – PRELIMINARY VERSION

Saturday, September 3<sup>rd</sup>, 2022

### Main Session

Room: Auditorium

07:30– 08:30	<b>Breakfast Symposium by Abiomed</b> Chair: Carlo di Mario, Florence, Italy <b>The role of pMCS – Which patients benefit from hemodynamic support</b> Jan-Malte Sinning, Köln, Germany <b>Benefit of pMCS support in CHIP – case illustration</b> Kambis Mashayekhi, Lahr, Germany
08:40 – 11:00	<b>Session 5: Retrograde – technical aspects</b> Chairmen: Alfredo Galassi, Palermo, Italy; Dimitrios Karpaliotis, Morristown, USA; Nicolaus Reifart, Königstein, Germany
08:40	<b>Live case presentation 7 and 8</b> Discussants: Jürgen Arenz, Recklinghausen, Germany; Ioanes Dan, Gothenburg, Sweden; Jaroslaw Wójcik, Lublin, Poland
08:50	<b>LIVE CASE 7: presented by Asahi</b> Kenya Nasu, Aichi, Japan
08:50	<b>LIVE CASE 8: presented by IMDS</b> Roberto Garbo, Turin, Italy
10:10	<b>What is an interventional collateral?</b> Sudhir Rathore, Guildford, UK
10:20	<b>Reverse CART – state of the art</b> Georgios Sianos, Thessaloniki, Greece
10:35	<b>Connection Failure – Antegrade preparation is essential</b> Andrea Gagnor, Turin, Italy
10:45	<b>Externalisation Failure – What next?</b> Nicolas Boudou, Bordeaux, France
10:55	Coffee break and exhibition
11:30 – 13:30	<b>Session 6: The calcified CTO – the ultimate challenge</b> Chairmen: Nicolas Boudou, Bordeaux, France; Roberto Garbo, Turin, Italy; Sudhir Rathore, Guildford, UK
11:30	<b>Live case presentation 9 and 10</b> Discussants: Nenad Bozinovic, Nis, Serbia; Vojtech Novotny, Pardubice, Czech Republic; Stylianos Pyxaras, Fürth, Germany
11:40	<b>LIVE CASE 9: presented by ASAHI</b> Masahisa Yamane, Sayama City, Japan

### AGIK Parallel Session

Room: West-Foyer

08:45 – 10:15	<b>AGIK</b> <b>Session 4: The 101 of the global consensus approaches</b> Chairmen: Harald Lapp, Bad Berka, Germany; Jaroslaw Wójcik, Lublin, Poland; Tommaso Gori, Mainz, Germany
08:45	<b>Impulse: Indicators for the necessity of a retrograde approach</b> Bernward Lauer, Jena, Germany
09:00	<b>LIAB Retrograde CTO reverse CART Setup</b> Patrick Siegrist, Zurich, Switzerland
09:20	<b>How would I treat</b> Maciej Lesiak, Poznan, Poland (via Webmeeting)
09:40	<b>Procedural course</b> Patrick Siegrist, Zurich, Switzerland
09:55	<b>Keynote: My essential tips &amp; tricks for success in retrograde approach</b> Stylianos Pyxaras, Fürth, Germany
10:15	Coffee break and exhibition
11:30 – 13:00	<b>AGIK</b> <b>Session 5: Essential tools for complication management</b> Chairmen: Dimitrios Karpaliotis, Morristown, USA; Kambis Mashayekhi, Lahr, Germany; Andrea Gagnor, Turin, Italy
11:30	<b>Impulse: How to evaluate and address the risks of CTO PCI</b> Sylvia Otto, Jena, Germany
12:00	<b>LIAB post CABG mit Impella</b> Mohamed Ayoub, Bad Oeynhausen, Germany
12:30	<b>Keynote: My essential tips &amp; tricks for success in complication management</b> Kambis Mashayekhi, Lahr, Germany

## SCIENTIFIC PROGRAM – PRELIMINARY VERSION

### Main Session

Room: Auditorium

11:40	<b>LIVE CASE 10</b> Zisis Dimitriadis, Frankfurt, Germany	
13:10	<b>Impenetrable calcified cap</b> Jo Dens, Genk, Belgium	
13:20	<b>Plaque modification: IVL, atherectomy, balloons</b> Florim Cuculi, Luzern, Switzerland	
13:30– 14:15	<b>Lunch Symposium by Asahi</b> <b>Road to CTO expert 2022 – how to build your CTO toolkit</b> Speaker: Gerald Werner, Darmstadt, Germany; Kambis Mashayekhi, Lahr, Germany; Jo Dens, Genk, Belgium; Gregor Leibundgut, Bâle, Suisse	
13:30– 14:30	<b>Industry Hands-on Session (Terumo)</b> <b>Planning for success</b> Lecturer: Andrea Gagnor, Turin, Italy	Room: Hands-on 1
13:30– 14:30	<b>Industry Hands-on Session (Teleflex)</b> <b>CTO Simulator &amp; Heart Model</b> Lecturer: Felix Woitek, Dresden, Germany	Room: Hands-on 2
13:30	Lunch break, exhibition	
15:00 – 17:00	<b>Session 7: Avoid complications and optimize CTO PCI outcome</b> Chairmen: Kambis Mashayekhi, Lahr, Germany; Gerald S. Werner, Darmstadt, Germany; Masahisa Yamane, Sayama City, Japan	
15:00	<b>Live case presentation 11</b> Discussants: Luca Grancini, Milan, Italy; Aigars Lismanis, Riga, Latvia; Sinisa Stojkovic, Belgrade, Serbia	
15:05	<b>LIVE CASE 11: presented by Boston Scientific</b> Dimitrios Karpaliotis, Morristown, USA	
15:05	<b>LIVE CASE 12: presented by BIOTRONIK</b> Georgios Sianos, Thessaloniki, Greece	
16:30	<b>How to reduce periprocedural MACE rate in CTO PCI?</b> Alessio Mattesini, Florence, Italy	
16:40	<b>Is there space for a minimalistic CTO PCI?</b> Pier Francesco Agostoni, Antwerp, Belgium	
16:50	<b>WRAP OF LIVE CASE – SUMMARY OF ALL FINAL RESULTS</b>	
16:55	<b>Closing remarks</b>	

## FACULTY

THE EURO CTO CLUB CORDIALLY THANKS THE INVITED SPEAKERS AND OPERATORS FOR SUPPORTING THE WORKSHOP WITH THEIR KNOWLEDGE AND EXPERTISE:

### GUEST FACULTY

- **Emmanouil Brilakis**  
Minneapolis, USA
- **Dimitrios Karpaliotis**  
Morristown, USA
- **Prathap Kumar**  
Kerala, India
- **Kenya Nasu**  
Aichi, Japan
- **Masahisa Yamane**  
Sayama City, Japan

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1. Data on file; 2. BIOTRONIK data on file; 3. Al-Lamee R, et al. Incidence, Predictors, Management, Immediate and Long-Term Outcomes Following Grade III Coronary Perforation. JACC: Cardiovasc Interv. 2011 Jan; 4(1):87-95; 4. Technical features and specifications based on BIOTRONIK data on file; 5. In comparison to Xience Sierra, Resolute Onyx and Synergy for bench tests on pushability, trackability and crossability. BIOTRONIK data on file. Orsiro Mission, PK Papyrus, Pantera and Lux are trademarks or registered trademarks of the BIOTRONIK Group of Companies. All other trademarks are the property of their respective owners.

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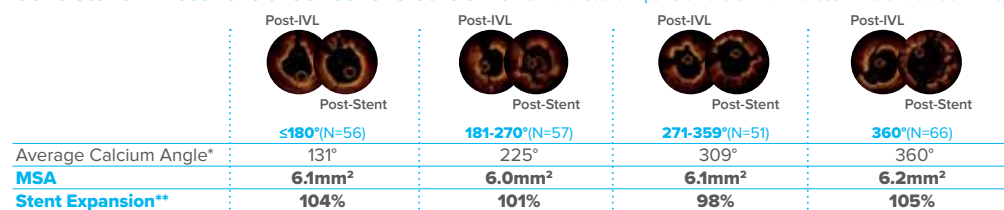
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New Core Lab-Adjudicated Data from Disrupt CAD Clinical Program Shows IVL's Safety and Effectiveness Across Calcium Morphologies

**Consistent in Eccentric & Concentric Calcium | MSA and Stent Expansion are Similar Across Different Calcium Arcs**



\*Continuous calcium angle was defined as the maximum uninterrupted calcium angle observed in the lesion and was used to define the category assignment.  
\*\*At maximum calcification site.

**Consistent in Lesions With or Without Calcified Nodules | MSA and Stent Expansion are Similar Regardless of Calcium Nodule\* Presence**



\*Calcium nodule was defined as an accumulation of nodular calcification (small calcium deposits) with disruption of fibrous cap on the calcified plate.  
\*\*At maximum calcification site.







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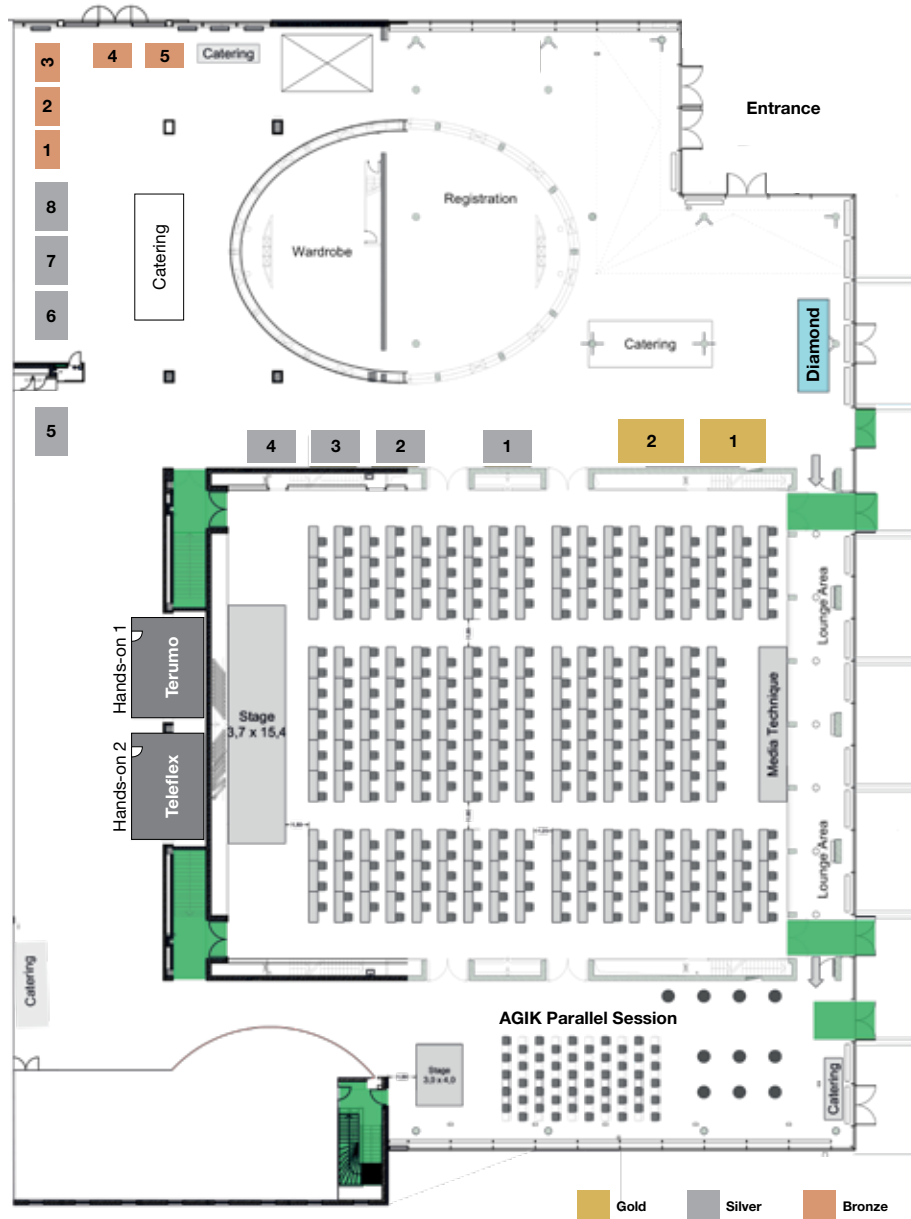
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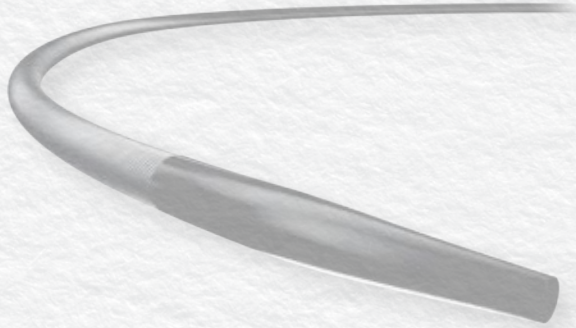




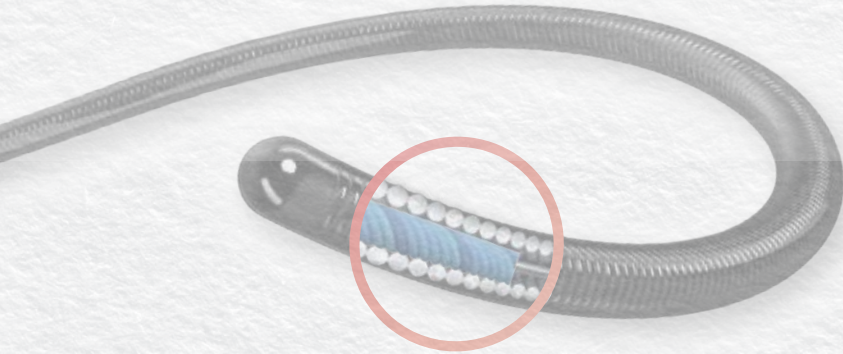
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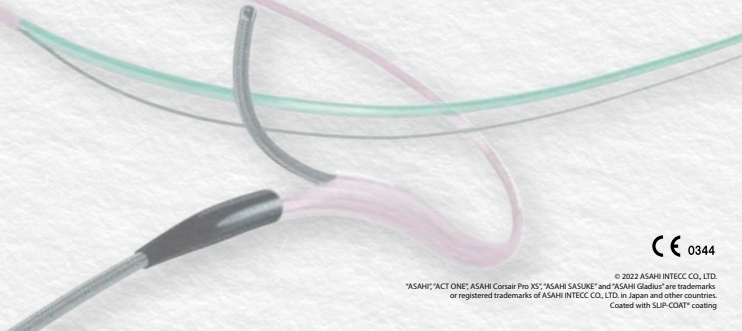
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