

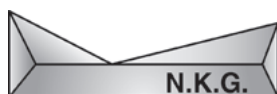


THE 13TH WORLD CONFERENCE ON TITANIUM 2015

August 16-20, 2015 • Manchester Grand Hyatt Hotel • San Diego, California, USA

PROGRAM PREVIEW

SPONSORED BY:



REGISTER BY JUNE 30, 2015 AND SAVE!

www.tms.org/Ti2015/ab



ABOUT THE CONFERENCE



THE 13TH WORLD CONFERENCE
ON TITANIUM 2015

REGISTER NOW FOR Ti-2015:

www.tms.org/Ti2015/ab

Register by June 30, 2015 and save!

The 13th World Conference on Titanium (Ti-2015) is the thirteenth in a series of meetings that have been held every four years since 1968, with the purpose of bringing together the world's titanium community to present and discuss progress in titanium science and technology. Participation of the seven major titanium countries (United Kingdom [UK], United States [U.S.], Commonwealth of Independent States [CIS], Japan, Germany, France, and China) in the International Organizing Committee guarantees extensive coverage of new areas in research, development, and application of titanium.

TECHNICAL TOPICS INCLUDE:

- Additive and near net shape manufacturing
- Aerospace applications
- Alloy composition-microstructure-properties
- Biomedical and healthcare applications
- Environmental behavior
- Extraction and powder production
- ICME—integrated computational materials engineering
- Industrial, marine, and other applications
- Intermetallics and MMCs
- Melting and casting
- Wrought processing and fabrication



This conference is sponsored by the Titanium Committee of the TMS Structural Materials Division.

CONFERENCE ORGANIZERS

ORGANIZING COMMITTEE:

- **Chair: Vasisht Venkatesh**, Pratt & Whitney
- **Vice-Chair: Julie Christodoulou**, U.S. Office of Naval Research
- **Program Chair: Adam Pilchak**, U.S. Air Force Research Laboratory
- **John Allison**, University of Michigan
- **Sreeramamurthy Ankem**, University of Maryland
- **Rod Boyer**, The Boeing Company (Retired)
- **Amit Chatterjee**, Rolls-Royce
- **Hamish Fraser**, The Ohio State University
- **Ashraf Imam**, George Washington University
- **Yoji Kosaka**, Timet
- **Henry Rack**, Clemson University
- **Andy Woodfield**, GE Aviation

INTERNATIONAL ORGANIZING COMMITTEE:

- **Martin Jackson**, The Institute of Materials, Minerals and Mining (IOM3)
- **Vasisht Venkatesh**, Chair, The Minerals, Metals & Materials Society (TMS)
- **Rodney Boyer**, ASM International
- **Orest Ivasishin**, Interstate Association "Titan"
- **Mitsuo Niinomi**, Japan Institute of Metals (JIM)
- **Lothar Wagner**, Deutsche Gesellschaft für Materialkunde e.V. (DGM)
- **Patrick Villechaise**, La Société Française de Métallurgie et de Matériaux (SF2M)
- **Lian Zhou**, The Nonferrous Metals Society of China, (NFSoc)

REGISTRATION

All conference attendees, including authors, presenters, and session chairs, are required to register. To receive the discount registration rate, register by June 30, 2015 at www.tms.org/Ti2015/ab.

Registration Fees	Discount*	Standard
Member	\$925	\$1,025
Nonmember+	\$1,035	\$1,135
Student**	\$395	\$495

- + Includes TMS membership through December 31, 2015.
- * Discount rates apply through June 30, 2015.
- ** A copy of student school identification card must accompany registration form.

Full-conference registration includes technical sessions, exhibition, post-conference proceedings CD, lunch on Monday and Tuesday, and one ticket to the conference banquet on Wednesday evening. *Please note:* Student registration does not include a ticket to the conference banquet on Wednesday evening.

CONFERENCE LOCATION

Conference Location: Manchester Grand Hyatt in San Diego, California, USA



Manchester Grand Hyatt San Diego

1 Market Place

San Diego, California, USA, 92101

Tel: +1 (619) 232-1234 • Fax: +1 (619) 233-6464

E-mail: sandiego.grand@hyatt.com

Website: <http://www.manchestergrand.hyatt.com>

HOUSING & TRAVEL

A block of rooms has been reserved at the Manchester Grand Hyatt San Diego at a special rate for your convenience. To access this special rate, book your room via the conference website: www.tms.org/Ti2015/ab

Accommodations must be secured by June 30, 2015.

GETTING THERE

The Manchester Grand Hyatt San Diego is ideally situated on San Diego Bay, between the San Diego Convention Center and the city’s popular Seaport Village. The hotel offers a spectacular waterfront resort-like setting, complete with shopping, dining, and entertainment venues that can be found steps away in the Gaslamp Quarter. San Diego enjoys a mild, sunny climate throughout the year.

The hotel is located approximately 10 minutes by taxi from the San Diego International Airport (SAN). There is no conference shuttle transportation, but attendees can visit the [San Diego International Airport](http://www.sanair.com) for information about ground transportation to the hotel.

SPONSORSHIP OPPORTUNITIES

Corporate sponsorship offers high visibility at the conference reception, refreshment breaks, and attendee social activities, as well as on registration amenities like reusable canvas bags, badges, and lanyards.

For more information on purchasing a corporate sponsorship, visit the Sponsorship page of the Ti-2015 website: www.tms.org/Ti2015/ab



NETWORKING/SOCIAL EVENTS

SUNDAY, AUGUST 16

Welcome Reception: 6:30 p.m. to 7:30 p.m.

MONDAY, AUGUST 17

Conference Luncheon: 12:00 p.m. to 1:30 p.m.

Exhibition: 3:00 p.m. to 6:30 p.m.

Poster Session I Viewing/Reception:

5:30 p.m. to 6:30 p.m.

TUESDAY, AUGUST 18

Exhibition: 9:00 a.m. to 4:00 p.m.

Conference luncheon: 12:00 p.m. to 1:30 p.m.

Poster Session II Viewing/Reception:

5:30 p.m. to 6:30 p.m.

WEDNESDAY, AUGUST 19

Exhibition: 9:00 a.m. to 11:00 a.m.

TECHNICAL PROGRAM

Conference Plenary Session

Monday, August 17, 8:00 a.m. to 12:00 p.m.

Harbor Ballroom

SPEAKERS

Martin Jackson, University of Sheffield
“Titanium Research Developments in the United Kingdom”

Vasish Venkatesh, Pratt & Whitney
“Recent Developments of Titanium Research in the United States”

Orest Ivasishin, Interstate Association “Titan”
“Titanium Production, Research and Applications in CIS: Current Status and Future Trends”

Mitsuo Niinomi, Institute for Materials Research, Tohoku University
“Recent Topics of Titanium Research and Development in Japan”

Carsten Siemers, Technical University of Braunschweig
“Recent Developments of Titanium Research in Germany”

Patrick Villechaise, Institut P’, CNRS - ENSMA - Université de Poitiers
“Recent Developments of Titanium Research and Engineering Activities in France”

Hui Chang, Nanjing Tech University; and **Lian Zhou**, Nanjing Tech University and Northwest Institute for Nonferrous Metal Research
“Situation of Titanium Industry, Technologies and Research in China”

KEYNOTE SPEAKERS

- **Extraction and Powder Production**
Kartik Rao, Metalysis, UK
- **Wrought Processing and Fabrication**
M.O. Leder, VSMPO-AVISMA Corporation, CIS
- **Melting and Casting**
Steve Fox, Timet, U.S.
- **Alloy Composition-Microstructure-Properties**
Lee Semiatin, U.S. Air Force Research Laboratory, U.S.
Hideo Oyama, Kobe Steel Ltd., Japan
Benoit Appolaire, ONERA, France
- **Intermetallics and MMCs**
Helmut Clemens, University of Leoben, Austria
- **Additive and 3D Printing**
Huaming Wang, Beihang University, China
- **Environmental Behavior**
Dave Rugg, Rolls-Royce, UK
- **Aerospace Applications**
Dan Roth-Fagaraseanu, Rolls-Royce, Germany
Astrid Lenain, Techspace Aero, Belgium
- **Biomedical and Healthcare Applications**
Mitsuo Niinomi, Institute for Materials Research, Tohoku University, Japan
- **Industrial, Marine, and Other Applications**
I.V. Gorynin, A.S. Oryshchenko, V.P. Leonov, V.I. Mikhailov, I.A. Schastlivaya, FSUE CRISM “Prometey,” CIS
- **ICME—Integrated Computational Materials Engineering**
John Allison, University of Michigan, U.S.
Yuwen Cui, Nanjing University of Technology, China

Titanium and Titanium Alloys: Attributes, History, Metallurgy, Processing and Case Studies

Sunday, August 16, 2015 • 1:00 p.m. to 4:30 p.m.

COURSE OVERVIEW

Titanium and its alloys are a versatile family of materials with applications in many industries. They have high strength to weight ratios; excellent corrosion resistance; high and low temperature capabilities; compatibility with graphite fibers, which is gaining importance with the increased utilization of composites in aircraft; and other attractive features. This unique combination of physical, mechanical, and chemical properties make them attractive for aerospace, marine, industrial, biomedical, and other applications. An overview of the unique attributes of titanium, a brief history, basic metallurgy and heat treatment, and some basics on its melting and processing will be provided. Several case histories which help demonstrate some of the unique properties will be presented.

COURSE INSTRUCTOR



Rodney Boyer spent nearly 47 years at Boeing—about 45 years as a titanium specialist and 35 years as the lead engineer of the Titanium Metallurgy Group. Boyer was responsible for directing titanium research for commercial airplanes; titanium procurement and processing specifications; resolution of titanium fleet and manufacturing issues; and approval of suppliers worldwide. In his time at Boeing, he conducted studies of all conventional Ti-alloy systems and almost all product forms. He introduced several new technologies onto Boeing aircraft, which were ultimately used by other airframe manufacturers. Since leaving Boeing, he has been working as an independent consultant.

For additional course information or to register, visit the course page on the Ti-2015 website:

www.tms.org/Ti2015/ab

REGISTRATION

Registration Fees	Discount*	Standard
Member	\$275	\$350
Nonmember	\$325	\$425
Student**	\$125	\$175

* Discount rates apply through June 30, 2015.

** A copy of student school identification card must accompany registration form.

Practical implementation of Microstructure Databases

Sunday, August 16, 2015 • 8:30 a.m. to 4:30 p.m.

COURSE OVERVIEW

The main goal of this course is to provide participants with an overview of microstructure quantification, informatics, and databases, with an emphasis on practical implementation of these tools using real datasets to address challenges in microstructure-sensitive quality control and modeling of mechanical behavior. Participants will use the provided toolkit to gain hands-on experience in: (i) quantification of microstructure heterogeneities found in titanium alloys; (ii) processing and analytics of optical, BSE, and EBSD datasets; (iii) data flow and visualization of microstructure databases; (iv) materials data science techniques for identification and quantification of multi-dimension microstructure heterogeneities (e.g., macrozones); and (v) insertion of microstructure variability in quality control and process modeling. *Participants should bring a PC to the course for practice sessions and access to the ICMRLTM toolkit during the conference via MRL cloud (applications are web-based and do not require additional software installation).*

COURSE INSTRUCTOR



Ayman Salem is the president and CEO of Materials Resources LLC (MRL), a small business specialized in acquisition and analytics of “Materials Big Data.” Salem received his Ph.D. in materials science and engineering from Drexel University in 2002. Salem has been

working on quantifying the effect of microstructure on the mechanical behavior of aerospace alloys during thermomechanical processing and in-service applications under multiple contracts with the U.S. Air Force Research Laboratory (AFRL) and OEMs.

This course is brought to you in part by:



For additional course information or to register, visit the course page on the Ti-2015 website:

www.tms.org/Ti2015/ab

REGISTRATION

Registration Fees	Discount*	Standard
Member	\$575	\$650
Nonmember	\$625	\$725
Student**	\$250	\$325

* Discount rates apply through June 30, 2015.

** A copy of student school identification card must accompany registration form.