First Circular and Program (Draft)

The 19th KIM-JIM Symposium

Recent Advances in Artificial Intelligence and Simulations in Materials Science and Engineering

October 25, 2018

Daejeon Convention Center (DCC)

Daejeon, Korea

Organized by

The Korean Institute of Metals and Materials

The Japan Institute of Metals and Materials

KIM THE KOREAN INSTITUTE OF METALS AND MATERIALS

N.K.G. 公益社団法人 日本金属学会 The Japan Institute of Metals and Materials

This one-day international symposium will be held on October 25, 2018 and is hosted by The Korean Institute of Metals and Materials (KIM) and The Japan Institute of Metals and Materials (JIM). The symposium is organized during the 2018 Fall Annual Meeting of KIM, October 24 to 26, 2018, and is focused on recent trends and case studies on artificial intelligence (AI) and computational simulations in materials science and engineering. The KIM-JIM joint symposium has been held alternately in Korea and Japan, and this year marks the nineteenth symposium. It is held in Korea in even-numbered years and in Japan in odd-numbered years.

All participants are encouraged to present the results of their recent works in related fields, such as artificial intelligence (AI), big data, machine & deep learning, materials informatics, and computational simulations. Both keynote lectures and technical sessions are planned at the symposium.

This symposium will share the recent advances in materials development, prediction of mechanical properties, optimization of manufacturing processes, prognostics and health management for engineering systems, and structural integrity analysis by using artificial intelligence (AI) and computational simulations. We hope that these latest technologies will become more actively employed and generate fruitful outcomes in the materials sector.

Organizing Committee

Organizer

Seog-Hyeon Ryu
Advisor
Doosan Heavy Industries & Construction Co., Ltd
Korea

Yoshitaka Adachi
Professor
Nagoya University
Japan

Co-organizers

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Pusan National University
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Nagoya University
Japan

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Nagoya University
Japan

Secretariat

SiHyun Yoo (Ms.)
Secretary
The Korean Institute of Metals and Materials (KIM)
Korea

Hideaki Yamamura, Ph.D,
Secretary General
The Japan Institute of Metals and Materials
Japan

Program (Draft)

October 25, 2018

08:30-17:30 Registration
-Japan participants do not have to pay the registration fee.
-If you come to the operating headquarters, you will receive a name tag and luncheon voucher.

09:00-09:10 Welcome address by the president of KIM and JIM

Keynote Speech (Chairman: TBD)

09:10-10:10 Keynote speech 1 & 2
Speakers and Titles: TBD
2 speakers in total invited from Korea and Japan, respectively

Technical Session 1 (Chairman: TBD)

10:10-12:30 Technical papers
Speakers and Titles: TBD
5 to 6 speakers in total invited from Korea and Japan

13:30-17:00 Lunch Break

Technical Session 2 (Chairman: TBD)

13:30-15:00 Invited lecture and technical papers

Speakers and Titles: TBD

3 to 4 speakers in total invited from Korea and Japan

15:00-15:20 Break

Technical Session 3 (Chairman: TBD)

15:20-17:00 Technical papers

Speakers and Titles: TBD

4 to 5 speakers in total invited from Korea and Japan

Venue

The symposium will be held at the Daejeon Convention Center (DCC) in Daejeon city. Good public transport connections are available to and from anywhere in Korea. Homepage: http://www.dcckorea.or.kr/en/

Abstract

We cordially asked the authors to provide an abstract of the presentations for preparing symposium proceedings. Abstracts should be submitted by **August 20, 2018**. A template of the abstract is attached in Appendix 1. All submissions of abstract should be directed to:

Dr. Seog-Hyeon Ryu
Doosan Heavy Industries & Construction
55 Seocho-daero 77-gil, Seocho-gu, Seoul, Korea (06611)
e-mail: seoghyeon.ryu@doosan.com or seoghyeon.ryu@gmail.com

Official Language and Method of Presentation

The official language is English. All presentations have to be prepared by electronic files such as ppt (MS Powerpoint) or PDF files. Before each technical session starts, speakers must submit their presentation files to the person operating the projector system.

Accommodations

All attendees will be responsible for making their own hotel reservations. Detailed accommodation information will be provided as soon as possible.

Travel Information

Please refer to Appendix 2 for details.

VISA

An invitation letter will be offered to people who need a visa to participate in the KIM-JIM symposium in Korea. In this case, please send us a request email including a personal profile (e.g. name, date of birth, nationality, address, and affiliation) and attach a copy of your passport.

Pre-Registration

For those who want to preregister for name tag preparation, please fill out and send the application form attached in Appendix 3 by **October 10, 2018**. Japan participants do not have to pay the registration fee.

For further information on registration, accommodations, travel, and visa, please contact Ms. SiHyun Yoo of KIM via email (mmi@kim.or.kr).

For further information about the symposium, please contact:

Dr. Seog-Hyeon Ryu
Mobile: +82-10-6767-7007
Email: seoghyeon.ryu@doosan.com

Appendix 1. The format of the abstract

Unique Plastic Deformation Behavior and Fabrication by Additive Manufacturing of Beta-type Ti alloys

Takayoshi Nakano[1], Koji Hagihara[2], Takuya Ishimoto[1]

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Speaker:nakano@mat.eng.osaka-u.ac.jp

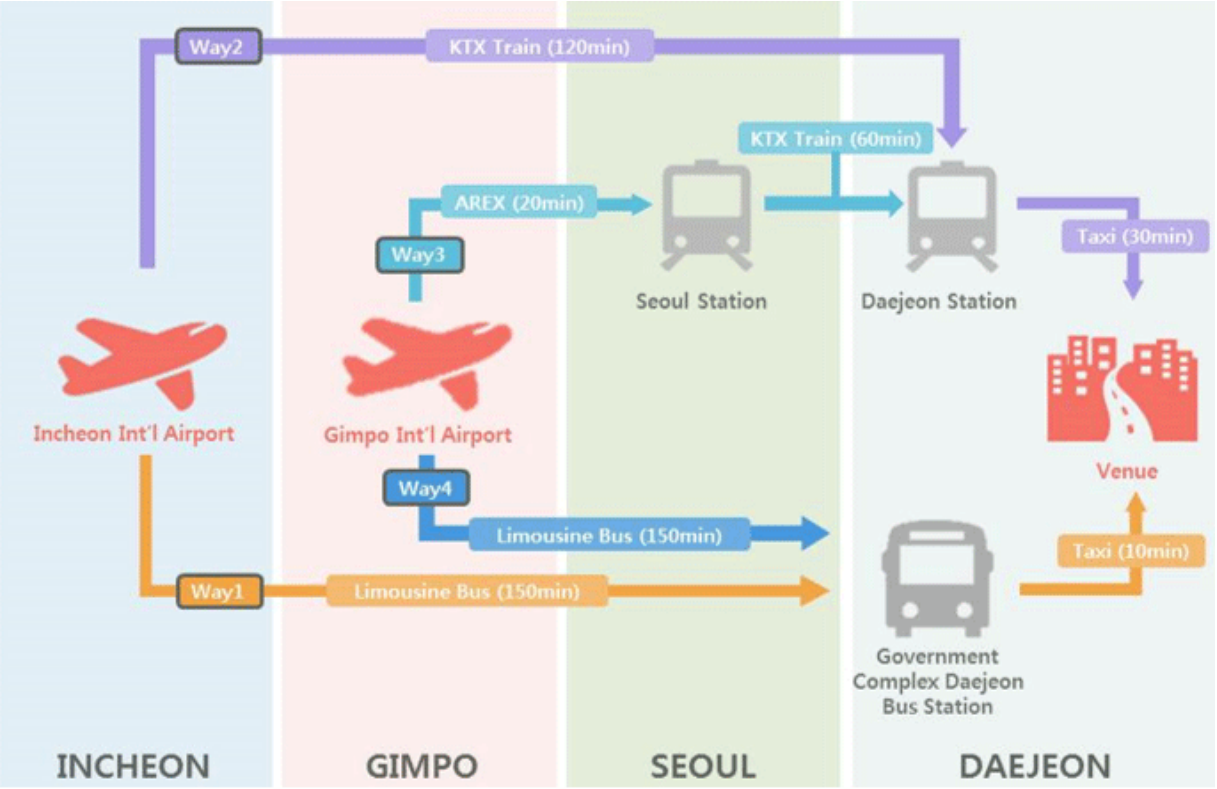
Keywords : Dynamic Precipitation Softening, β-titanium alloys, Metal Additive Manufacturing, Scan Strategy

β-type titanium alloy has received much attention as a bone substitute material because of its excellent functions, particularly low Young's modulus. The low elasticity often appears in the unstable β region, but the formation of precipitates such as ω-phase frequently accompanies at the region. In recent years, unique dynamic precipitation softening phenomenon was found in Ti-Nb β-type alloy single crystal (Scientific Reports, 7 (2017), srep8056) in our group. The to-and-fro motion of dislocations in the cyclic deformation induces the precipitation of a specific ω-phase variant whose c-axis is parallel to the Burgers vector of the moving dislocation, and it causes the unique softening phenomenon, which is quite different from the usual precipitation hardening behavior.

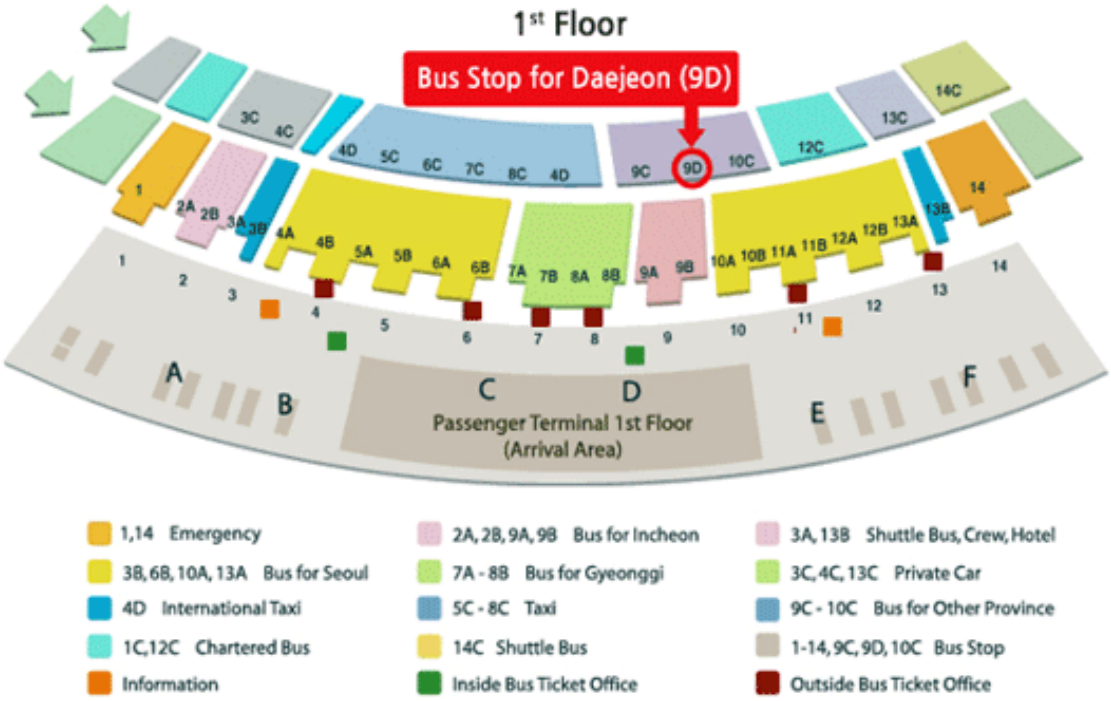
Additionally, for the fabrication of the β-type Ti alloy bone substitute, not only the shape but also the microstructure can be simultaneously controlled by metal additive manufacturing of the powder bed fusion system. Especially by controlling the scan strategy, it becomes possible to control the single-crystal-like microstructure having a crystallographic texture in which the low elastic <100> direction is aligned along a specific direction (Scripta Materialia, 132 (2017), pp. 34-38). In our presentation, we will explain the details of these recent finding.

(Word count of abstract should be equal to or less than 300. Keywords count is equal to or less than five.)

Appendix 2. Ground transportation information from either Incheon or Gimpo International Airport to Daejeon city and DCC



① Incheon International Airport → Government Complex Daejeon Bus Station



Transportation	Limousine Bus
Time	Approx. 2 and half hours (150 min.)
Fee	Approx. KRW 25,000
Website	http://www.airport.kr/pa/en/d/3/1/1/index.jsp
Check	- You can purchase the ticket near the platform 9D or at the ticket booth inside the terminal building near the 1st floor gate 5 or 8. - This bus will not go through the rest area normally. - It will stop at 4 locations in Daejeon. And the third stop (Daejeon Chungsa= Government Complex Station) is the best stop for you to get off.

② Government Complex Daejeon Bus Station → DCC (or Hotel)

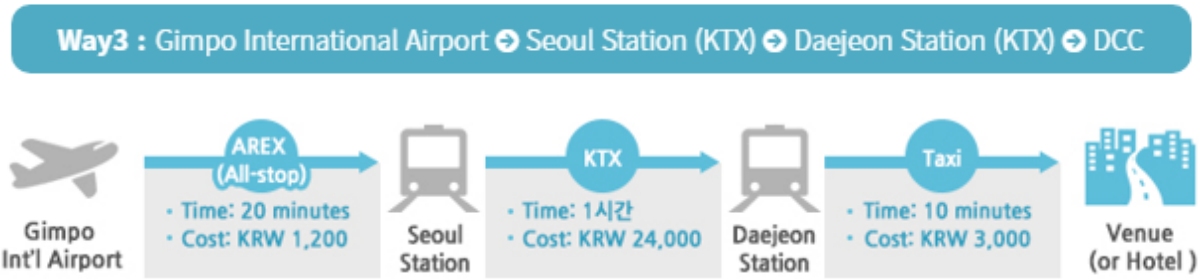
Transportation	Taxi
Time	Approx. 10 minutes
Fee	Approx. KRW 3,000

① Incheon International Airport →Daejeon Station (KTX train)

Transportation	KTX train
Time	Approx. 2 hours (120 min.)
Fee	Approx. KRW 37,000
Website	http://www.letskorail.com
Check	- KTX between Incheon International Airport and Daejeon Station runs only five or six times a day.

② Daejeon Station(KTX train) → DCC (or Hotel)

Transportation	Taxi
Time	Approx. 30 minutes
Fee	Approx. KRW 8,000



① Gimpo International Airport → Seoul Station (KTX)

Transportation	AREX Train (All-stop)
Time	Approx. 20 min.
Fee	Approx. KRW 1,200
Website	http://www.arex.or.kr/main.do

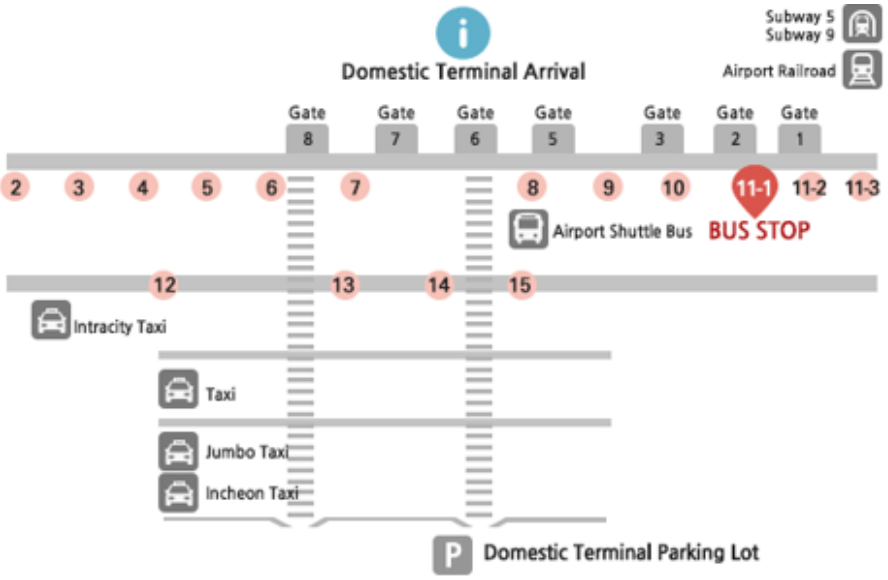
② Seoul Station (KTX) → Daejeon Station (KTX)

Transportation	KTX train
Time	Approx. 1 hour (60 min.)
Fee	Approx. KRW 24,000
Website	http://www.letskorail.com

③ Daejeon Station (KTX) → DCC (or Hotel)

Transportation	Taxi
Time	Approx. 30 minutes
Fee	Approx. KRW 8,000

① Gimpo International Airport → Government Complex Daejeon Bus Station



Transportation	Limousine Bus
Time	Approx. 2 and half hours (150 min.)
Fee	Approx. KRW 15,000
Website	http://www.airport.co.kr/gimpoeng/index.do

② Government Complex Daejeon Bus Station → DCC (or Hotel)

Transportation	Taxi
Time	Approx. 10 minutes
Fee	Approx. KRW 3,000

Appendix 3. The 19th KIM-JIM Symposium Application Form

Last Name	
First Name	
Title (Prof/Dr/Mr/Ms)	
Affiliation (Institute/Company)	