

**Japan-US Symposium on
“Perspective of High Energy Density Science and Technology by High Power Lasers”**

1. Host:

- Science Council of Japan (SCJ), Committee on Comprehensive Synthetic Engineering,
- Subcommittee of Energy Science and Technology

2. Co-organizer:

- Institute of Laser Engineering (ILE), Osaka University
- Kansai Photon Science Institute, National Institutes for Quantum and Radiological Science and Technology (QST)
- Research center of synchrotron radiation science, RIKEN Spring-8 Center
- Lawrence Livermore National Laboratory (LLNL)
- Laboratory for Laser Energetics (LLE), University of Rochester
- SLAC National Accelerator Laboratory

3. Supported by

- Embassy of Japan in the United States of America
- IFE Forum

4. Sponsorship:

- The Laser Society of Japan
- The Physical Society of Japan
- The Japan Society of Plasma Science and Nuclear Fusion Research

5. Date and time:

January 23 and 24, 2019

6. Place:

Embassy of Japan in the United States of America, Washington D.C., USA

7. Subcommittee meeting: N/A

8. Objective of the symposium:

Science and technology of the extreme state (high energy density state) developed by the high-power laser drive the academic and industrial innovation such as fusion energy, new material creation, advanced photon beam generation, nuclear engineering and others. Large and small high-power laser facilities are now operated in Japan, the United States of America, Europe, and Asia. The high energy density science research has been developed quite rapidly. It is desirable to have a platform to exchange opinions for future R&D and cooperation under the Japan-US partnership. For this purpose, following the symposium held at the LLNL in September, 2015, we propose to hold a Japan-US symposium at the Embassy of Japan in the USA. This symposium will discuss the issues raised at the previous LLNL symposium and aims

to clarify the significance of the agreement on the Japan-US cooperation program, which is under consideration as a new initiative, for the high energy density science field.

9. Program Part I.

January 23 (Wednesday) Symposium

Morning session

Chair: Kunioki Mima (Cooperating Member of SCJ; Professor Emeritus, Osaka University; The Graduate School for the Creation and New Photonics Industries (GPI))

9:00 Opening Address

Yasuo Suzuoki (Member of SCJ; Faculty of Engineering, Aichi Institute of Technology)

9:10 Opening Remarks

Miyoko Watanabe (Vice-president, SCJ)

Patricia Falcone (Deputy Director, LLNL)

Shojiro Nishio (President of Osaka University)

(presented by Kazuhiko Hasegawa (Director of North America Branch, Osaka Univ.))

Kazutoshi Aikawa (Deputy Chief of Mission, Embassy of Japan in USA)

Tomihiko Oishi, (Chairman of IFE Forum; Executive of KEPCO)

Keynote Lecture

9:30 Science and Technology Policy in Japan

Sonoko Watanabe (Deputy Director-General, Science and Technology Policy Bureau, MEXT)

9:50 Prospects and issues of high energy density science research in U.S.A.

James Van Dam (Associate Director of Office of Fusion Energy Science, DOE)

10:10 Prospects and issues of high energy density science research in Japan

Ryosuke Kodama (Director, ILE, Osaka University)

10:40 Break

Lecture

11:00 Prospects and issues of power laser and photon beam science

Dimitri Kusnezov (Chief scientist and Senior Advisor to the Secretary, NNSA, DOE)

11:20 Current status and future of NIF

Mark Herrmann (NIF Director, LLNL)

11:50-13:00 Lunch break

Afternoon Lecture

Chair: Masaaki Inutake (Cooperating Member of SCJ; Professor Emeritus, Tohoku University)

13:00 Development of power laser and photon beam science technology

Tetsuya Kawachi (Director, Kansai Photon Science Institute, QST)

13:30 Current status and future of Laboratory for Laser Energetics

Michael Campbell (Director, LLE, U. Rochester)

14:00 Advanced high energy photon science and technology at RIKEN

Tetsuya Ishikawa (Director, SACLA, RIKEN)

14:30 Advance photon science and technology at LCLS

Mike Dunne (Director of the Linac Coherent Light Source, SLAC)

15:00-15:30 Coffee break

Panel Discussion

-Discussions on Energy Science & Technology and High-Power Laser -

Chair: Hiroshi Azechi (Cooperating Member of SCJ; Guest Professor, ILE, Osaka University)

Coordinator: Shunsuke Kondo (Cooperating Member of SCJ;

President of Nuclear Waste Management Organization of Japan)

Panelists:

- Michael Campbell (Director, LLE, University of Rochester)
- Mike Dunne (Director, Linac Coherent Light Source, SLAC)
- Mark Herrmann (NIF Director, LLNL)
- Frank Graziani (Director of High Energy Density Science Center, LLNL)
- Tetsuya Ishikawa (Director, RIKEN SPring-8 center)
- Yoshiaki Kato (Professor, The GPI, Advisor for President of QST),
- Tetsuya Kawachi (Director, Kansai Photon Science Institute, QST)
- Ryosuke Kodama (Director, ILE, Osaka University)
- Miyoko Watanabe (Vice-president, SCJ)

17:00 Concluding Remarks

Shunsuke Kondo (Member of SCJ; Nuclear Waste Management Organization of Japan)

Closing of Part I

17:15 Closing Remarks of Symposium

Kenichi Ueda (Member of SCJ; University of Electro-Communications)End of session

Part II

17:30 Signing Ceremony of Project Arrangement (MEXT, Japan and DOE, USA)

January 24 (Thu.) Japan-US Deep Dives at Carnegie Endowment for International Peace

8:30-8:40	Welcome message from CEIP	
8:40-8:55	Review of Science Council of Japan 2015 (US side)	Terry Land (LLNL)
8:55-9:10	Review of Science Council of Japan 2015 (Japan side)	Kunioki Mima (GPI)
9:10-9:15	Purpose of the meeting	Yasuhiko Sentoku (ILE)
9:15-9:30	Break	

Parallel sessions I

Category 1. Laser Fusion, Plasma Physics and Neutron Source

Moderators [Shinsuke Fujioka \(ILE\)](#)
[Alex Arefiev \(UCSD\)](#)

9:30-10:30	Proposals from Japan
	Shinsuke Fujioka (ILE)
	Akifumi Yogo (ILE)
	James Koga (KPSI, QST)
	Hideo Nagatomo (ILE)

10:30-11:30	Proposals from USA
	Farahat Beg (UCSD)
	Alex Arefiev (UCSD)
	Tammy Ma (LLNL)

11:30-12:00 Discussions

12:00-13:00 Lunch

Parallel sessions II

Category 2. Laboratory Astrophysics

Moderators [Youichi Sakawa \(ILE\)](#)
[Bruce Remington \(LLNL\)](#)

13:00-14:00	Proposals from USA
	Petros Tzeferacos (U Chicago)
	Carolyn Kuranz (U Michigan)
	Frederico Fiuza (LCLS, SLAC)

14:00-15:00	Proposals from Japan
	Youichi Sawaka (ILE)
	Natsumi Iwata (ILE)
	Takayoshi Sano (ILE)

15:00-15:30 Discussions

15:30-15:50 Break

15:50-16:05 Out Brief Category 1

16:05-16:20 Out Brief Category 2

16:20-16:35 Out Brief Category 3

16:35-16:50 Out Brief Category 4

16:50-17:00 Closing Remarks

Frank Graziani (LLNL) and Yasuhiko Sentoku (ILE)

Category 3. Extreme Material Science and X-FEL

Moderators [Hitoki Yoneda \(U Electro-Communications\)](#)
[Gilbert Collins \(U Rochester\)](#)

9:30-10:30	Proposals from Japan
	Norimasa Ozaki (Osaka U)
	Toshinori Yabuuchi (SACLA, RIKEN)
	Yuichi Inubushi (SACLA, RIKEN)
	Keisuke Shigemori (ILE)

10:30-11:30	Proposals from USA
	Gilbert Collins (U Rochester)
	Siegfried Glenzer (LCLS, SLAC)
	Hye-Sook Park (LLNL)
	James Hawreliak (Washington State U)

11:30-12:00 Discussions

Category 4. High Power Laser Integration (Tech. & Particle Acceleration)

Moderators [Mamiko Nishiuchi \(QST\)](#)
[Tammy Ma \(LLNL\)](#)

13:00-14:00	Proposals from USA
	Dustin Froula (U Rochester)
	Hui Chen (LLNL)
	Gillis Dyer (LCLS, SLAC)

14:00-15:00	Proposals from Japan
	Junji Kawanaka (ILE)
	Hiromitsu Kiriya (KPSI, QST)
	Mamiko Nishiuchi (KPSI, QST)
	Tomonao Hosokai (Osaka U/SACLA, RIKEN)
	Yoshinori Tamaoki (HPK)

15:00-15:30 Discussions