

**AGREEMENT FOR INTERNATIONAL CONSORTIUM FOR  
“DEVELOPMENT OF HIGH POWER TERAHERTZ SCIENCE AND  
TECHNOLOGY”**

**Concept:** The frequency range from sub-THz to THz remains an undeveloped field, because of a lack of high-power radiation sources. Presently, however, the development of high frequency gyrotrons has realized radiation sources which are available in the THz region with a much higher power than other conventional radiation sources. In addition, the development of new radiation sources other than gyrotrons and new spectroscopy technique has also advanced further. Such evolutions can open the study of new high power THz science and technology. Applications to material science, high power THz spectroscopy and development of new functional materials have already begun and advanced. Considering such a back-ground and the present situation with regard to new studies, we intend to make a renewal of the present international consortium on “Development and application of submillimeter wave gyrotrons” which was organized by Research Center for Development of Far-Infrared Region, University of Fukui (FIR UF) and has continued during the past ten years. In the renewed framework, we will change the title of the consortium to “Advance of the Development of High Power THz Science and Technology” and rearrange the participating institutions. FIR UF will continue the management as the facilitator of the renewed consortium.

**1) The objectives of the consortium:**

To organize the main institutions in the world contributing to the “Advance of the development of high power THz science and technology” in order to construct a renewed international consortium and to activate this research area world-wide.

**2) Activities of the consortium:**

To achieve the objectives of the consortium, we will carry out the following activities.

- A web site will be developed and launched for exchanging the scientific information in the consortium and a "news letters" of the consortium will be published.
- Research results developed by one participating institution exclusively shall become the property of this institution. When any participating institution publishes a research result in the above mentioned research field, the information (for example, how to access on the network to the contents of the result) should be announced on the web site provided that the respective research results are not developed in projects of the institutions financed by third-party funds or supported by third parties and that the results does not in conflict with the rights of third parties. This item applies only to research results of the respective institute of the participating institution. There is no obligation for any of the participating institution to publish.

- To activate this research area, participating institutions should make efforts to advance mutual personal exchanges. Participating institutions should confirm that all of personal exchanges will be subject to compliances with the entry and visa regulation. Personal exchange may not be permitted if any research results coming from the personal exchange conflict with the security export control policy of the government of home countries of the institutions.
- On the basis of the agreement between participating institutions, collaborative research work will be carried out concerning high power THz science and technology. Specific cooperation in the research area above shall be subject to a separate written agreement.

### **3) Participating institutions:**

- Research Center for Development of Far-Infrared Region, University of Fukui (Japan), Facilitator of the consortium
- Institute for Pulsed Power and Microwave Technology, Karlsruhe Institute of Technology (Germany)
- Institute of Applied Physics, Russian Academy of Sciences (Russia)
- Plasma Science and Fusion Center, Massachusetts Institute of Technology (USA)
- Institute for Protein Research, Osaka University (Japan)
- Department of Physics, Graduate School of Science, The University of Tokyo (Japan)
- Institute of Interfacial Process Engineering and Plasma Technology, University of Stuttgart (Germany)
- Institute of Electronics, Bulgarian Academy of Sciences (Bulgaria)
- NMR Group, Department of Physics, University of Warwick (UK)
- Institute of Solid State Physics, University of Latvia (Latvia)
- O. Ya. Usikov Institute of Radiophysics and Electronics, National Academy of Sciences of Ukraine (Ukraine)
- Faculty of Radiophysics, State University of Nizhny Novgorod (Russia)
- Optoelectronics Research Interdisciplinary Center, National Tsing Hua University (Taiwan)

### **4) Term of validity:** Five years, from 1 April 2015 to 31 March 2020.

Any institution may terminate its participation by an advance notice to all other institutions more than three months before its termination.

**5)** Other policies necessary for the management of the consortium will be discussed and finalized by all participating institutions and shall be subject to a separate written agreement.

### **6) Confirmation of participation in the consortium:**

On behalf of our institutions, we will sign in agreement of the establishment of the consortium and confirm participation to the consortium.

Signed by:



Prof. Masahiko Tani, The Director,  
Research Center for Development of Far-Infrared Region, University of Fukui (Japan,  
Facilitator of the consortium)



**Dr. Elke Luise Barnstedt**  
Vice President

Human Resources and Law  
Karlsruhe Institute of Technology (Germany)



**Professor Dr. Detlef Löhe**  
Vice President

Research and Information

Karlsruhe Institute of Technology (Germany)



Prof. Alexander Litvak, The Director,  
Institute of Applied Physics, Russian Academy of Sciences (Russia)



Prof. Richard J. Temkin, The Associate Director,  
Plasma Science and Fusion Center, Massachusetts Institute of Technology (USA)



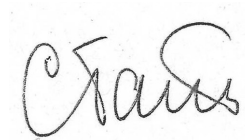
Prof. Haruki Nakamura, The Director,  
Institute for Protein Research, Osaka University (Japan)



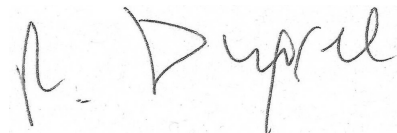
Prof. Shoji Asai, The Group Leader,  
Department of Physics, Graduate School of Science, The University of Tokyo (Japan)



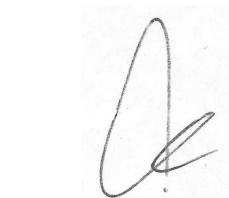
Prof. Thomas Hirth, The Director,  
Institute of Interfacial Process Engineering and Plasma Technology, University of  
Stuttgart (Germany)




Prof. Sanka Gateva, The Director,  
Institute of Electronics, Bulgarian Academy of Sciences (Bulgaria)



Prof. Ray Dupree, The Group Leader,  
NMR Group, Department of Physics, University of Warwick (UK)



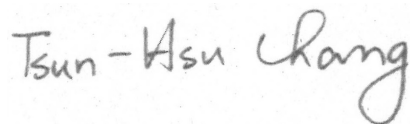
Prof. Andris Sternberg, The Director,  
Institute of Solid State Physics, University of Latvia (Latvia)



Prof. Peter N. Melezhik, The Director,  
O. Ya. Usikov Institute of Radiophysics and Electronics, National Academy of Sciences of  
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Prof. Evgeniy Chuprunov, The Rector,  
Faculty of Radiophysics, State University of Nizhny Novgorod (Russia)



Prof. Tsun-Hsu Chang, The Director,  
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