

The research project “Building a space-time information infrastructure with a cloud optical lattice clock”, which SIGMA KOKI CO., LTD. participates as a joint research partner under the JST-Mirai Program (Large-scale Type), has been approved for 2020 by the Japan Science and Technology Agency

We would like to extend our gratitude for your continued support.

The development plan for the research project “Space-time information infrastructure using cloud optical lattice clocks” (Hereinafter referred to as “this project”) “(Hidetoshi Katori – Research leader: Professor at Graduate School of Engineering, University of Tokyo / Team Leader at Riken Photonics Research Center, Senior Researcher at Riken Development Research Headquarters) has been approved under the JST-Mirai Program (Large-scale Type) implemented by the Japan Science and Technology Agency (hereinafter referred to as “JST”). Based on this, we have renewed our R&D agreement where we are participating in as a joint research institution and will continue to participate as a joint research partner.

Research area
Ultra-high precision time measurement that leads to new communication & time-related businesses.
Research subject
“Construction of space-time information infrastructure by cloud optical lattice clock”
Research summary
<p>Improving the definition of “second” with the most advanced time measurement technology enables advanced communication and positioning and is an essential source of technology driving next-generation businesses that create new services. In recent years, an ultrahigh-precision atomic clock method that improves the conventional clock accuracy by several digits has been developed. It is expected that advanced technology using this method will be actively developed, mainly in the fields of communication and information.</p> <p>In this research project, we will develop the miniaturization, weight reduction and stable operation of the “optical lattice clock” in order to quickly put the most advanced time measurement technology into practical use and introduce it to the academic and industrial fields. We will also establish a distribution technology that shares time between multiple points and long distances and build an ultra-high precision time infrastructure that replaces GNSS (Global Navigation Satellite System).</p> <p>This research and development will lead to new time-related businesses such as next-generation communication and relativistic geodesy through widely supplying ultra-high-precision time to the society.</p>

Source: Japan Science and Technology Agency (JST)

JST-Mirai Program Large-scale Type

https://www.jst.go.jp/mirai/jp/uploads/saitaku2018/JPMJMI18A1_katori.pdf

“Ultrahigh precision time measurement technologies leading to a new time-business”

We have signed a R&D agreement with JST in 2019 based on our “optical solution capability” that we have cultivated as an “optical solution company (“Light Solutions for Life” is our brand statement) where we can solve social issues through optical technology. We are working on a joint verification by providing the finest optical parts and equipment for verification experiments of miniaturization, weight reduction and stable operation of optical lattice clocks.

The development plan for this project for 2020 has been approved by, and the R&D agreement was renewed with JST. As a result, we continue to participate in this project as we did last year, and will promote the development of optical components and small optical modules that achieve high stability and long life to materialize small and portable optical lattice clocks.

In this project, we will create a new time standard by redefining “seconds”, develop future communication applications, develop new geodetic technologies such as seismology and volcanology, and create future applications beyond our imagination. With the goal set, it is expected that the technology for practical use will be developed and new time solution businesses will be created.

As a leading company in the optical industry, we will provide new optical components and optical modules to continue and strengthen this project. Going forward, we will continue to contribute to the development of optical technology by actively engaging in joint research projects with industry, academia and government.

<Contact for inquiries regarding this matter>

SIGMAKOKI CO., LTD

Corporate planning division, Honda & Byeon

e-Mail : ir@sigma-koki.com TEL : 03-5638-8223

Reception time : 9:00~17:00 (Excluding company holidays)