Report on the scientific activities

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Activities

Five secondments in Japan and one in Germany:

1. 27/06/2018 - 14/07/2018: ICRR (*The University of Tokyo*)
2. 15/09/2018 - 30/09/2018: ICRR (*The University of Tokyo*)
3. 01/12/2018 - 15/12/2018: ICRR (*The University of Tokyo*)
4. 14/04/2019 - 22/04/2019: ICRR (*The University of Tokyo*)
5. 24/06/2019 - 30/06/2019: Impex Hightech Gmbh (*Münster, Germany*)
6. 17/07/2019 - 28/07/2019 ICRR (*The University of Tokyo*)

Collaboration

- ICRR: located in the Kashiwa-noha Campus (*The Tokyo University*), ICRR is one of the funding institutions of the KAGRA observatory. The group is mainly involved in the development and characterization of the KAGRA payload at cryogenic temperature.

- IMPEX HIGHTECH Gmbh: the company head office is located in Munster (*Germany*) but the operative core is in Armenia. The company has developed and produced the main parts for the silica monolithic suspension of Virgo experiment and the sapphire parts for Kagra monolithic suspensions.

Secondment topic

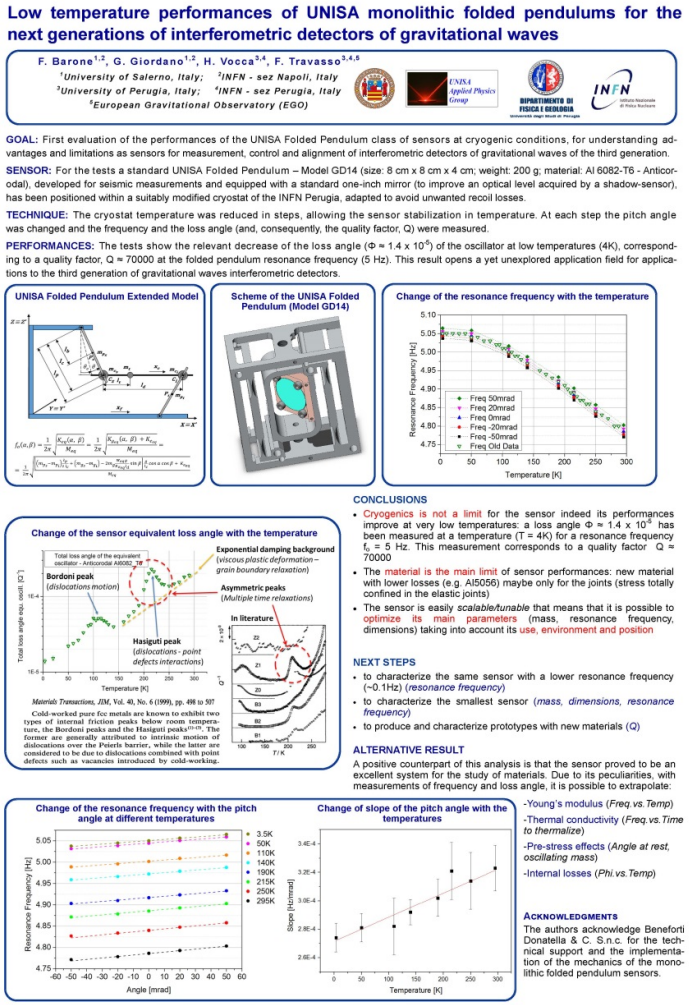
(ICRR 27/06/2018 – 14/07/2018)

4th Kagra International Workshop, Seoul (Chorea) – 27-30June 2018

Poster on the development of a cryogenic accelerometer based on a new paradigm

ICRR, The Tokyo University, 1-14 July 2018

Assembling of the first prototype of a silicon cryogenic suspension for the 3rd generation of GW detectors.



Secondment topic

(ICRR 15/09/2018 – 30/09/2018)

Payload

Suspension of a silicon substrate through a Cu-Be wire (*cradle configuration*) in a cryostat for its characterisation

Read-out system

Installation of a Michelson interferometer for the mechanical quality factors measurements at cryogenic temperature

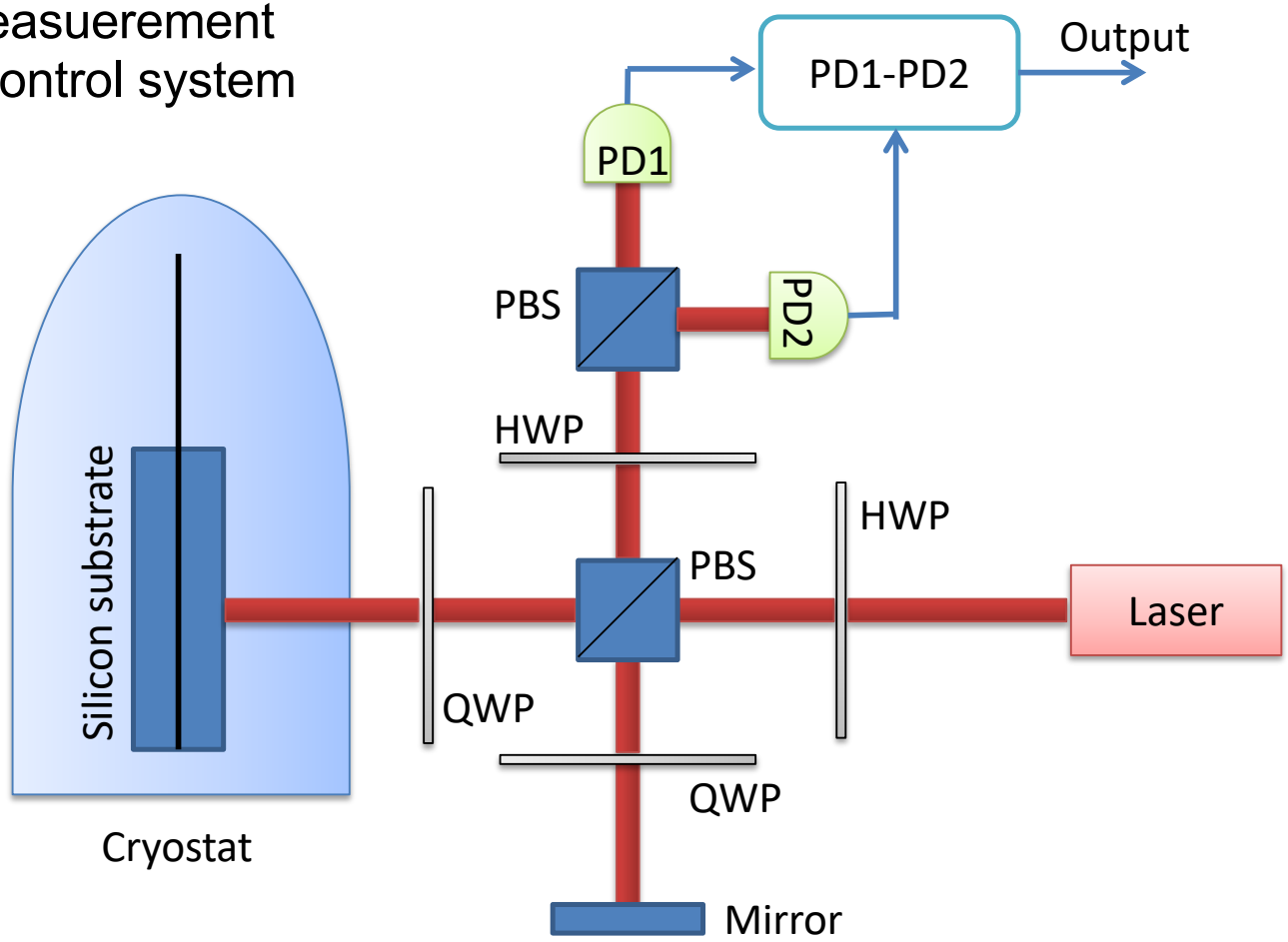
Secondment topic

(ICRR 1/12/2018 – 15/012/2018)

Homodine system

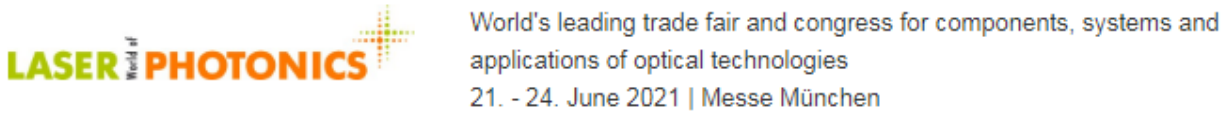
Installation and test of a homodine system for a more sensible Q measuerement system and for a future control system

During our stay, we had the chance to participate to the 21st Kagra F2F meeting held in NAOJ from 5th to 6th December 2019)



Secondment topic
(ICRR 14/04/2019 – 22/04/2019)

22nd Kagra F2F meeting
The meeting was held at ICRR from 19 to 21 April 2019 giving us the chance to work on the silicon suspension activities and to talk with other partners of the collaboration about the ongoing experiment

ICRR activiti
Before and d


noise
induced by th

Secondment topic

(ICRR 24/06/2019 – 30/06/2019)

Laser World of Photonics Congress

The fair was held in the old city airport: the Impex Hightech GmbH company had a booth where was possible to talk with companion companies as well!

Impex

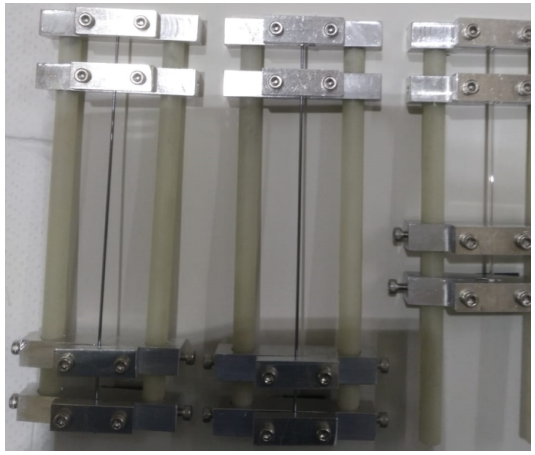
After the participation to the fair, it was possible to visit the head office of the company at Munster, talk with the Armenian producer and discuss on the possibilities to machine silicon fibers with two “head”

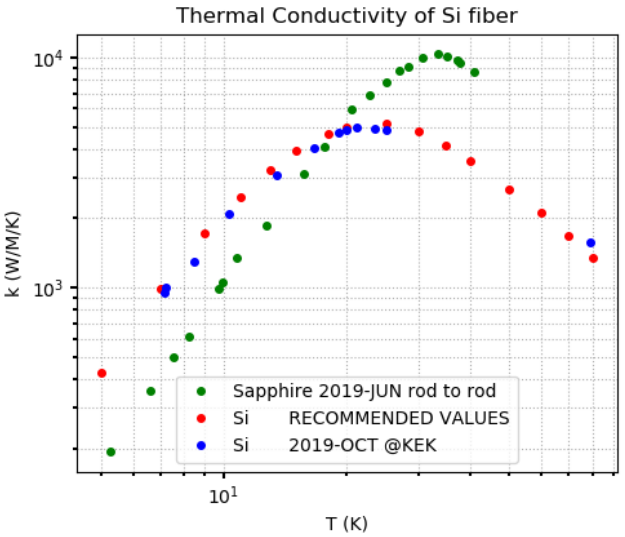
Secondment topic

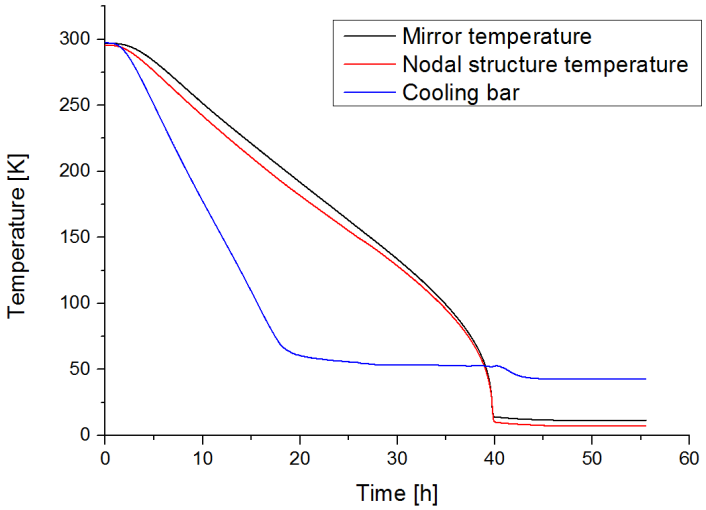
(ICRR 17/07/2019 – 28/07/2019)

Nodal system for substrates

A nodal system for thick substrate was developed and installed in the cryostat at ICRR: the cooling down efficiency was measured







Fibers Thermal conductivity

Three monocrystalline silicon fiber were installed into a cryostat in KEK to measure silicon thermal properties at cryogenic temperature and to see if there is any relevant difference due to the quality of the surface, the dopant and so on