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NEWS



European Commission



H2020-MSCA-RISE-2016 – Grant Agreement N° 734303

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Gravitational waves detectors

Helios Vocca and Enrico Calloni



WP-3 Co-Leaders



FARADAY
TECHNOLOGY®

NINS
National Institutes of Natural Sciences



WP3: Gravitational wave detectors (Research, Training, Transfer of Knowledge)

Lead: UNIPG

Participant: INFN, UNIPI, UNINA, UNIPG, Impex, EGO, CNRS, CALTECH, NAOJ

Objectives

O3.1: Test the frequency dependent squeezing on a fullscale prototype, before using this technique in the Advanced detectors.

O3.2: Develop a subtraction scheme for non stationary gravity gradient noise.

O3.3: Study of silicon and sapphire materials for third generation monolithic suspensions.

O3.4: Study of payload and seismic suspension systems for cryogenic facilities

O3.5: Implementation of advanced control techniques for second and third generation gravitational wave detectors

Motivations

- At the present time gravitational wave physics has started with two detectors in US (Advanced Ligo) and now the one in Europe (Advanced Virgo) is also joining.
- In the near future the Japanese KAGRA detector will start taking data.
- The aim of this WP is to optimize the improvements on R&D to improve the sensitivity of advanced gravitational wave detectors.
- The main noises particularly interesting from the point of view of scientific motivations are Seismic Noise, Newtonian Noise, Thermal Noise and the Quantum noise.

Secondments status

- 3.2 secondments from UNIPG to NAOJ have been already done
 - 2 H. Vocca (ER)
 - 1 A. Piluso (TS)

The secondments have been anticipated and for the TS changed from Caltech to NAOJ...

Researcher Declaration SAVE

Fellow Id	First Name	Last Name	Gender	Birthday	Nationality	Submitted Declarations	Actions
1	Helios	Vocca	Male	29-12-1970	IT	1 of 1	
2	Antontonfranco	Piluso	Male	10-06-1963	IT	1 of 1	
3	Nils	Håkanson	Male	01-12-1985	SE	1 of 1	
4	Nils	Håkansson	Male	01-12-1985	SE	1 of 1	

Researcher Declaration + Add Declaration

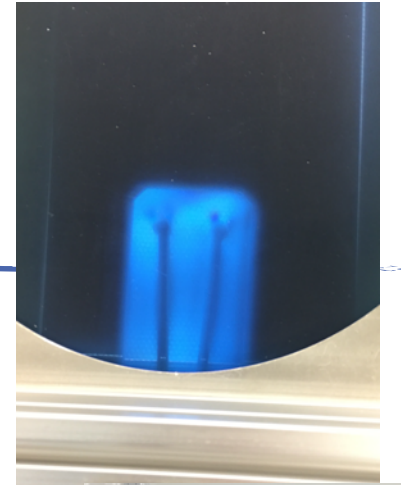
No	Fellow Id	First Name	Last Name	Status	Sending Organisation	Secondment Organisation	Start Date	End Date	Working Time Commitm	Duration	Actions
1	1	Helios	Vocca	SUBMIT	Universita Degli Studi Di Perugia	Inter-university Research Institute Corporation National Institutes Of Natural Sciences	07-07-2011	11-09-2011	Full Time	2.17	
2	2	Antontonfranco	Piluso	SUBMIT	Universita Degli Studi Di Perugia	Inter-university Research Institute Corporation National Institutes Of Natural Sciences	11-08-2011	11-09-2011	Full Time	1.03	
3	3	Nils	Håkanson	SUBMIT	Stockholms Universitet	Board Of Trustees Of The Leland Stanford Junior University	16-10-2011	27-10-2011	Full Time	0.4	
4	4	Nils	Håkansson	SUBMIT	Stockholms Universitet	Board Of Trustees Of The Leland Stanford Junior University	16-10-2011	27-10-2011	Full Time	0.4	

Validate

Secondment topic

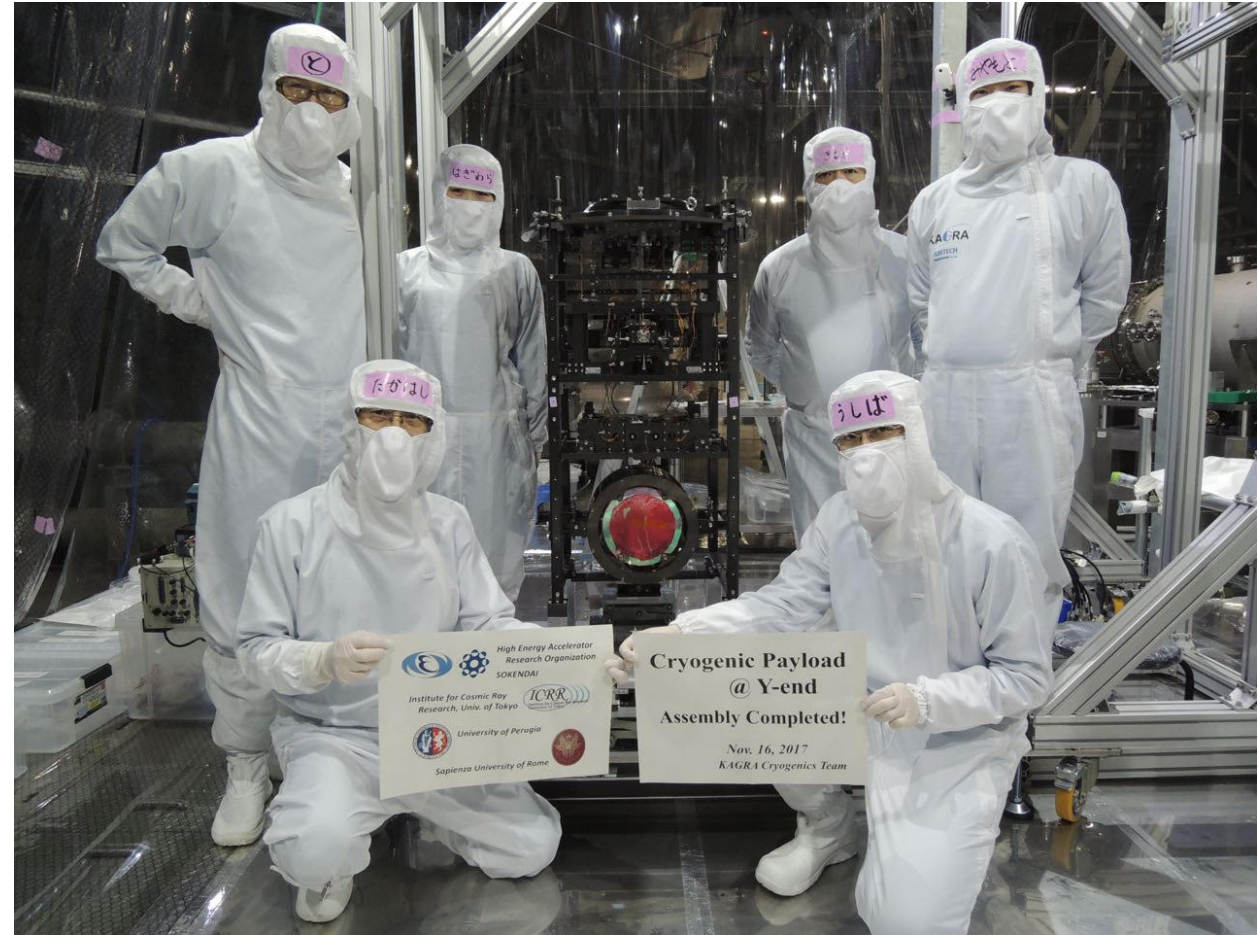
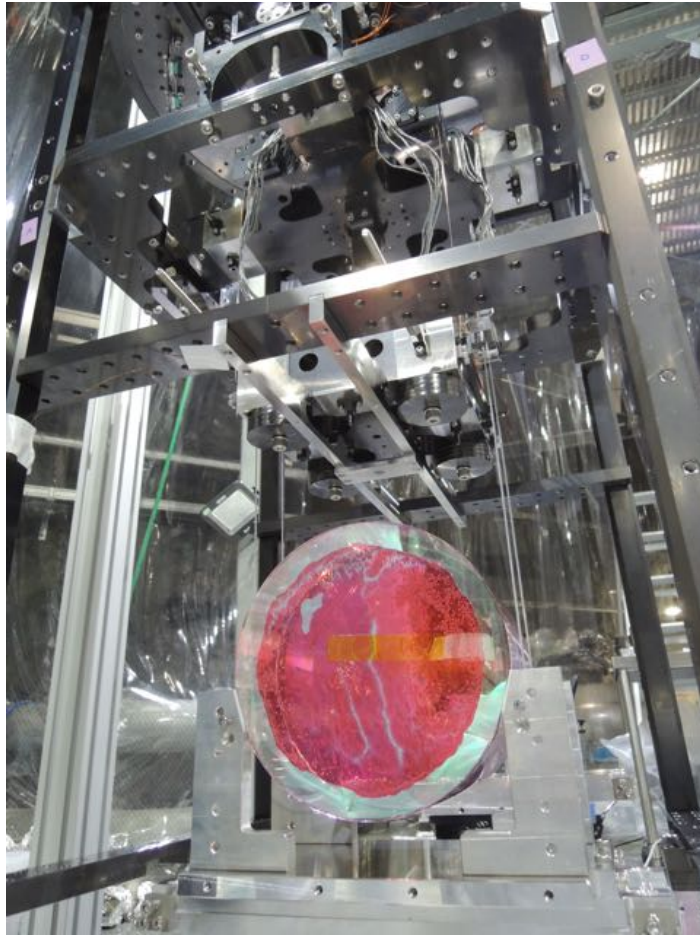
The secondment aim has been to collaborate on the development of a sapphire cryogenic suspension for the KAGRA optics:

- Measuring the stress distribution on some mechanical components (the blade springs).
- Testing and organizing the HCB procedure for bonding the lateral sapphire "ears" to the experiment final optics.
- Designing the whole mechanics and procedure for the final optics installation.



Last news on the topic

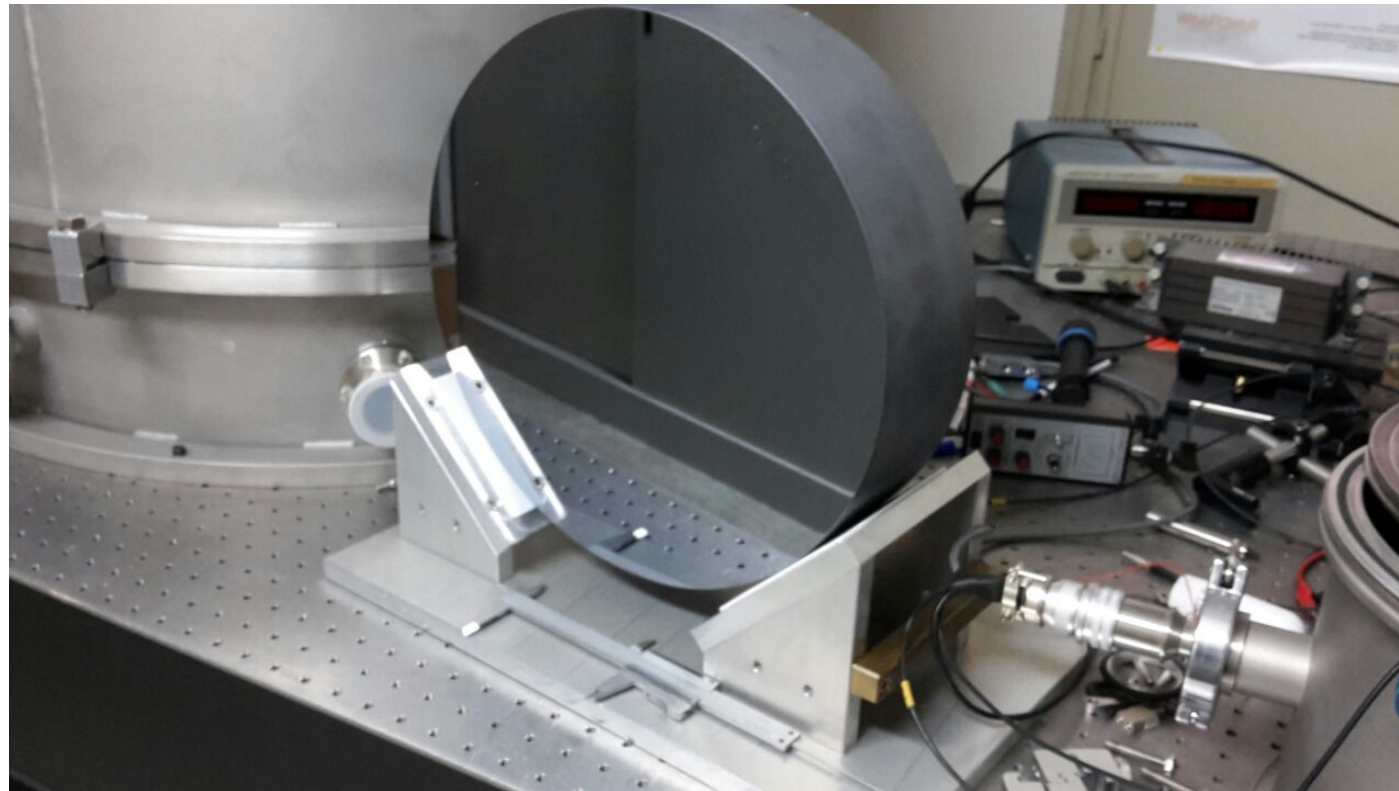
The collaboration of the Perugia and Roma groups was important to realize and install the first cryogenic suspension for Kagra



Last news on the topic

A Silicon mirror has been transferred to ICRR in December to start designing and testing a new kind of Cryo-suspension.

This topic is in collaboration with Caltech...



Foreseen Secondments

For the activity of this year the secondments already foreseen are:

UniRoma1: 1 month (M13) Ettore Majorana (ER)

UniRoma1: 1 month (M25) Ettore Majorana (maybe) (ER)

Unipg: 2 months (M-TBD) Helios Vocca (ER)

Unipg: 1 month (M-TBD) Flavio Travasso (ER)

Unipg: 1 month (M-TBD) Antonfranco Piluso (TS)

Secondments rearrangements

Some secondment has been rearranged for integrating ICRR in the WP

47	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP2	6	1
47	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP2	18	1
47	ER	UNIPG	IT	EU/AC	yes	CALIFORNIA INSTITUTE OF TECHNOLOGYCORP	US	TC	yes	WP2	30	1
47	ER	UNIPG	IT	EU/AC	yes	CALIFORNIA INSTITUTE OF TECHNOLOGYCORP	US	TC	yes	WP2	42	1
47	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP11	9	2
47	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP3	21	2
47	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP3	33	1
47	ER	UNIPG	IT	EU/AC	yes	NINS-NAOJ	JP	TC	yes	WP3	45	1
47	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP10	14	1
48	ER	UNIPG	IT	EU/AC	yes	CALIFORNIA INSTITUTE OF TECHNOLOGYCORP	US	TC	yes	WP2	7	1
48	ER	UNIPG	IT	EU/AC	yes	CALIFORNIA INSTITUTE OF TECHNOLOGYCORP	US	TC	yes	WP2	19	1

48	ER	UNIPG	IT	EU/AC	yes	CALIFORNIA INSTITUTE OF TECHNOLOGYCORP	US	TC	yes	WP2	31	1
48	ER	UNIPG	IT	EU/AC	yes	CALIFORNIA INSTITUTE OF TECHNOLOGYCORP	US	TC	yes	WP2	43	1
49	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP3	5	2
49	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP3	17	2
49	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP3	29	1
49	ER	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP3	35	1
49	ER	UNIPG	IT	EU/AC	yes	Impex	DE	EU/AC	no	WP10	14	1
49	ER	UNIPG	IT	EU/AC	yes	Impex	DE	EU/AC	no	WP3	38	1
50	Technical_staff	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP3	7	1
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50	Technical_staff	UNIPG	IT	EU/AC	yes	CALIFORNIA INSTITUTE OF TECHNOLOGYCORP	US	TC	yes	WP3	31	1
50	Technical_staff	UNIPG	IT	EU/AC	yes	CALIFORNIA INSTITUTE OF TECHNOLOGYCORP	US	TC	yes	WP3	43	1
51	Technical_staff	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP3	4	1
51	Technical_staff	UNIPG	IT	EU/AC	yes	ICRR	JP	TC	yes	WP3	22	1
51	Technical_staff	UNIPG	IT	EU/AC	yes	CALIFORNIA INSTITUTE OF TECHNOLOGYCORP	US	TC	yes	WP3	40	1