

Memorandum of Agreement
between the Virgo collaboration and the INFN group *Sezione di Roma*
for the participation to Virgo

April, 2015

The purpose of this agreement is to describe the participation of the Rome group to the Virgo collaboration. The period covered by this Memorandum is two year from the date of the VSC approval. Past involvements of the Roma group are described in the previous MoA (see VIR-PLA-DIR-1000-221).

CNRS and INFN signed an agreement concerning the realization of an antenna, Virgo, for the detection of gravitational waves on 27 June 1994 in Pisa. Virgo consists of a 3-km Fabry-Perot interferometric antenna aimed at the detection of gravitational waves in the frequency range 10-10000 Hz. The construction, exploitation and data analysis of the Virgo antenna is under the responsibility of the Virgo collaboration, which has been defined in its present form in December 2001. The Virgo collaboration is represented by its Spokesperson. The operation of the Virgo antenna is supervised by the EGO Council

The activities related to the engagement of the group were regularly supervised and discussed in the context of VSC, it is worthwhile to briefly summarize them enlightening the responsibility charges covered by the group.

A) Responsibilities of the Roma group for the construction of Advance Virgo are

- The design, construction and installation of the advanced Virgo payloads
- The local suspension control of the mirror
- Test facility for payload validation at EGO

B) Responsibilities of the Roma group members in the period January 1st 2012 - December 31st 2014:

1. AdV PAY sub-system coordination (P. Rapagnani)
2. Thermal noise, Finite Element analysis and payload design (P. Puppo);
3. Mirror suspension control and payload design (E. Majorana, MSC coordinator during Virgo commissioning);
4. Optical lever local control setup for AdV (E. Majorana);
5. DA coordinator of Virgo (P. Astone, until May 2014)
6. Virgo representative in the INFN-CNAF computing center board (A. Colla);
7. Spokesperson of the Virgo Collaboration (F. Ricci, from May 2014);

The activity engagements of the group for the next term, January 1st 2015- December 31st 2017, will remain essentially the same, excepted to the extent of the expired responsibilities (5,6). A new responsibility deserves to be specifically mentioned in the context of the next term:

B) The contribution of the Roma group to Virgo working groups is summarized below:

1. Participation to the construction activities of the Advanced Virgo interferometer.

2. Participation to R&D activities on thermal noise, payload design and construction.
3. Mirror suspension control (ex MSC).
4. Participation to the squeezing detection group.
5. Design assembly and operation of the payload test facility.
6. Development, maintenance and application to data of analysis software for the search of continuous wave signals (CW) from spinning neutron stars both isolated and in binary systems (SNAG package, PSS software); data cleaning procedures; NoEMi package for noise spectral lines identification and study.
7. Administration of a 416 cores computing cluster, used for Virgo data analysis.

Remark: the group will provide adequate support for the proper operation and maintenance of the devices under its responsibility.

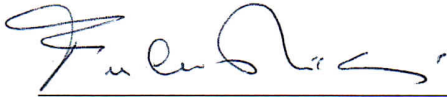
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The INFN group Sezione di Roma

	FTE	Author	Student	Activity/thesis subject
Pia Astone	80%	Yes	No	Data analysis: CW targeted and all-sky searches (DA 100%)
Fabio Basti (U)	20%	No	No	<i>Electronic technician</i>
Alberto Colla (GARR)	40%	Yes	No	Data analysis and computing: Farm administration; NoEMi; Grid expert (DA 100%)
Andrea Conte (U)	100%	Yes	Yes	Payloads construction, mechanical simulation and R&D optics, (R&D 20%, Pay-AdV 40%, Simul. pay 40%)
Matteo di Giovanni (U)	100%	Yes	Yes	Data Analysis: CW all-sky Mock Data Challenge
Sergio Frasca (U)	100%	Yes	No	Data analysis: CW targeted and all-sky searches (DA 100%)
Leaci Paola (U)	100%	Yes	No	Data Analysis: search for CW from neutron stars in binary systems
Ettore Majorana	100%	Yes	No	Payload construction and local control system and R&D ;(Adv. V 70%, R&D 30%) Group leader
Federica Mezzani	100%	Yes	No	Payload design and assembly (100%)
Luca Naticchioni (U)	100%	Yes	Yes	R&D on Seismic and env. noise reduction, payload AdV (Noise reduction R&D 30%, Pay construction AdV 40%) Squeezing Homodyne detection circuit (30%).
Cristiano Palomba	100%	Yes	No	Data analysis: CW targeted and all-sky searches. Grid expert (DA 100%)
Gabriele Paparo (CNR)	20%	No	No	R&D on Seismic and mechanical noise reduction,
Maurizio Perciballi	80%	No	No	Mechanical engineer (100%AdV – payload construction)
Ornella Piccinni (U)	100%	Yes	Yes	Data analysis: Short FFT database extension; CW all-sky search; NoEMi (DA 100%)
Paola Puppo	100%	Yes	No	Payloads, construction R&D thermal noise (R&D 30%, AdV 70%)
Piero Rapagnani (U)	80%	Yes	No	Payload construction and R&D on thermal noise (AdV 70% ; R&D 30 %)
Fulvio Ricci (U)	100%	Yes	No	Data analysis R&D on thermal noise; Payload construction; (DA 30%, AdV 70%) Payload construction; (DA 30%, AdV 70%). AdV Spokesman

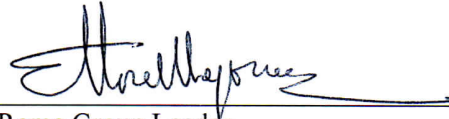
The group leader of INFN group Sezione di Roma will inform the Virgo collaboration of any change in the group composition and of any new thesis proposed.

Approved:



Virgo Collaboration Spokesperson

Date 01/04/2015



Rome Group Leader

Date 01/04/2015