

# 滞在型研究員報告書

## Activity Report for the NAOJ Visiting Fellows Program

所 属 (Institution)	APC – Université Paris Diderot
氏 名 (Name)	Eleonora Capocasa
研究課題名 (Research subject)	Realization of a 300 m long filter cavity for the production of frequency-dependent squeezed states of light at TAMA
滞在期間 (Period of stay)	年 月 日      ~      年 月 日 2016 06 25      2016 07 23
受入責任者氏名 (NAOJ host researcher)	Raffaele Flaminio

1. 滞在型研究員として国立天文台滞在中に行った活動について簡単にお書きください。  
(Summarize your activities during the stay using the NAOJ Visiting Fellows Program.)

My activity has been carried out in the context of the project for producing frequency-dependent squeezing to prepare the future upgrade of KAGRA.

I have worked in particular on the control of the suspension system for the filter cavity mirrors and the mirrors of the injection telescope. I also did simulation of the cavity using maps of the mirror that will be installed in the cavity.

2. 今回滞在型研究員として得られた成果について簡単にお書きください。  
(Summarize your research products from the stay.)

I installed an optical lever to sense the motion of the filter cavity end mirror. I duplicated the labview code I developed during my previous stay for the control of the input mirror and I could close the control loops.

I did the same for one mirror of the injection telescope.

Then, I simulate the round trip losses in the filter cavity, using the measured maps of the mirrors that will be installed. I did it in order to know the expected performances and figure out possible issues, in particular connected to possible degeneracies of the cavity, due to critical values of the mirrors' radius of curvature.

様式 2 (Form 2)

3. この制度について何か御意見がありましたら、お書きください。  
(Please provide any comments about this program.)

I think that my stay as been very well organized and useful to my formation and to the progress of the filter cavity experiment. I have particularly appreciated the possibility to join the weekly NAOJ Japanese class.