

# SCIENTIFIC REPORT

ALBERTO NAVARRO GARMENDIA

REF: 4012

VISIT: Univ Paris13 – From 10/03/2011 to 25/03/2011

## **Purpose of the visit:**

There were two main purposes of my visit to Paris:

- *Motivic Cohomology*: Discussing with F. Déglise about some topics of motivic cohomology and discussing the recent advances in a version of an Arakelov motivic cohomology made by Scholbach&Holmstrom.
- *Relativity and Geometric Quantum Field Theory*: Discussing with J. Fresán about the recent advances in the proof of Lovelock's theorem of Relativity and discussing about possible future objectives studying F. Paugam lecture notes. Attending Conne's seminar at College de France.

## **Work carried out during the visit:**

Every day I attended some lectures or discussions related with some of these two topics either at Paris 13, College de France, or Jussieu. More specifically I had at least two appointments per week with J. Fresán and F. Déglise. Many doubts were worked out in both areas and future questions were pointed out to be worked until June when I will meet them again to work on them.

## **Descriptions of the main results obtained:**

No new result has been obtained.

However, considerable progress has been made in understanding of Voevodsky's motivic cohomology and Scholbach&Holmstrom's definition of an arakelov motivic cohomology. This has been crucial for pointing out the working schedule for the next months.

On the Lovelock theorem side, a question arose that may be solved in the future time. May some hypothesis of Lovelock's theorem be skipped? Specifically the symmetric one?

## **Future collaboration with host institution.**

In June I will visit again Paris 13 to visit again both F. Déglise and J. Fresan to keep working on these subjects and to attend the Jussieu's summer school around Voevodsky's proof the Milnor conjecture (which made use, among other things, of motivic cohomology).

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### **Projected publicatins/articles resulting.**

None.

However, if succesfull, something may be griten aobut Lovelock's theorem with an original result and some personal notes regarding motivic chomology with no new result may appear in the fuutre in a personal webpage.

### **Other comments**

None