

# **Fundamental Physics Roadmap Advisory Team**

## **FPR-AT**

### **1<sup>st</sup> Summary Report on FPR-AT Activities**

On 02-03 June 2009, the FPR-AT convened in ESTEC for its first meeting. The meeting had a two-fold purpose:

- To start the screening of the white papers submitted by the scientific community in the fundamental physics domain;
- To organize the work and plan for the sequence of events that will finally bring to the Fundamental Physics Roadmap document.

The call for white papers was closed on 28 May 2009, date of the submission deadline. 19 papers have been received, covering the following main areas of research in the fundamental physics domain:

- Ultra-high energy cosmic rays;
- Optical clocks and atom interferometers for fundamental tests;
- Deep space gravity tests;
- Tests of quantum physics;
- Tests of the equivalence principle;
- Cosmology.

No white papers on detection and study of gravitational waves, as well as on the nature of dark energy had been solicited within this call as these topics are already covered by ongoing mission studies in the framework of the Cosmic Vision 2015-2025 plan.

During the meeting, the FPR-AT went through a first screening of the papers starting a detailed discussion on the scientific objectives, the experimental methods, and the enabling technology.

As agreed during the meeting, the Roadmap exercise will have to

- Establish science priorities, trading them against the technical feasibility of the proposed approaches;
- Define strategies for fundamental physics in space on the short-term (2010-2011), medium-term (2015), and long-term (2020);
- Propose a technology development plan addressing both short- to medium-term (in preparation to the next CV call) and a long-term;
- Explain quantitatively where and when space is needed;
- Share with the community the lessons learnt from fundamental physics mission presently under development (LISA Pathfinder, ACES, Microscope);
- Discuss how the scientific community should be organized to efficiently face the challenges posed by a space mission.

The call for white papers was the first step of a broad consultation process of the scientific community. This consultation will include in particular the fields of gravitational waves and dark energy which were explicitly not covered by the call for

white papers. The received input will be used by the FPR-AT to produce a draft Roadmap document that will be widely distributed by the end of 2009.

A Workshop, presently planned in ESTEC, Noordwijk – Netherlands, on 21-22 January 2010 (to be confirmed), will be the forum where the Roadmap document will be publicly discussed and finalized with the scientific community.

The FPR-AT will conclude its activities in March 2010 with the delivery of the Fundamental Physics Roadmap document.

Date: 19 June 2009

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