

# **2nd ESA International Workshop on GNC for Interplanetary and Small-Body Missions (GNCISB)**



**Thursday, 12 November 2015 - Friday, 13 November 2015**

**ESTEC**

## **Scientific Programme**

## PRESENTATION TOPICS

Presentations will be delivered on relevant topics such as (but not necessarily limited to) the following:

Challenges and design solutions in GNC systems of current and future missions;

In-orbit experience on GNC systems from past missions;

Autonomous (relative and absolute) navigation techniques and sensors for encounters with small bodies;

Vision-based navigation for descent, landing, flybys, hovering and loitering;

Environment modelling and impact on GNC design;

GNC systems for entry, descent and landing;

Control techniques for entry, descent, landing, flybys, hovering and loitering on planets and small bodies;

Specificities of FDIR for interplanetary and small body missions;

Modelling, simulation and testing of GNC systems for entry, descent, landing, flybys, hovering and loitering on planets and small bodies;

## ROUND TABLE TOPICS

A round table is planned to conclude the workshop. The goal of this round table is to wrap-up the workshop and, building upon the information presented at the workshop and the discussion held throughout the workshop, to lay down concrete proposals to:

Share the knowledge on GNC techniques and technologies employed in the interplanetary and small body missions community;

Identify technological gaps that will enable upcoming and future interplanetary and small body missions;

Foster initiatives that will help closing the identified technological gaps;

Undertake further actions and provide inputs for roadmaps for potential inclusion into ESA's technology R&D plans;

## Session #1: GNC for current missions

Guidance, Navigation, and Control Systems for missions under implementation or operations: JUICE, Bepi Colombo, Rosetta, ExoMars

## Session #2: GNC for future missions

Guidance, Navigation, and Control Systems for missions in their initial phases: AIM, Phobos Sample Return, Lunar landers

## **Session #3: GNC technologies**

Guidance, Navigation, and Control Technologies: Trajectories and Guidance, Navigation engineering, Control, FDIR.

## **Session #4: GNC technologies**

ESA Keynote on GNC systems and related operation aspects