

# Workshop:

## Multi-spacecraft investigations of the inner heliosphere: Italian opportunities

Sala Cassini ASI

3-4 December 2019

*First Day at 10.00*

***Session 1 – ESA heliophysics space missions: Italian contribution***

| <b>10:00</b> | <b>Introduction</b>   |                               |
|--------------|---|-------------------------------|
| 10:00        | ASI welcome   | C. Plainaki                   |
| 10:10        | Introduction  | Milillo, Spadaro and Plainaki |
| 10:15        | Heliophysics enabling Space Weather   | M.F. Marcucci                 |
| 10:30        | Planetary Space Weather science possibilities in the near future                      | C. Plainaki                   |
| <b>10:50</b> | <b>Space Mission Science for Space Weather</b>  |                               |
| 10:50        | BepiColombo science for Space Weather science   | A. Milillo                    |
| 11:20        | <i>Coffee break</i>   |                               |
| 11:50        | Solar Orbiter   | D. Spadaro                    |
| <b>12:20</b> | <b>Space Instrumentation concept, performances, operations and science</b>            |                               |
| 12:20        | Solar Orbiter/METIS   | M. Romoli                     |
| 12:50        | Solar Orbiter/SWA   | R. Bruno                      |
| 13:10        | Solar Orbiter/STIX  | M. Piana and A.M. Massone     |
| 13:30        | <i>Lunch break</i>  |                               |
| 14:30        | BepiColombo/Mercury Planetary Orbiter/SERENA  | S. Orsini                     |
| 15:00        | BepiColombo/Mercury Planetary Orbiter/SIMBIOSYS                                       | G. Naletto                    |
| 15:15        | BepiColombo/Mercury Magnetospheric Orbiter/MPPE-MEA                                   | M.F. Marcucci                 |
| 15:30        | BepiColombo/Mercury Magnetospheric Orbiter/PWI  | F. Califano                   |
| 15:45        | BepiColombo/Mercury Planetary Orbiter/SIXS  | M. Laurenza                   |
| 16:00        | <i>Coffee break</i>   |                               |
| 16:30        | BepiColombo/Mercury Planetary Orbiter/PHEBUS  | M. Pelizzo                    |
| 16:45        | BepiColombo/Mercury Planetary Orbiter/MORE  | L. Iess                       |
| 17:00        | Proba 3/Aspiics   | S. Fineschi                   |
| <b>17:20</b> | <b>Joint operation scenario (part 1)</b>  |                               |
| 17:20        | Overview of simultaneous operation phases BepiColombo, Solar Orbiter, PSP and Proba 3 | V. Andretta                   |
| 17:40        | BepiColombo cruise configuration for joint investigation                              | A. Milillo                    |
| 17:50        | <i>Discussion</i>   |                               |

*End of first day 18.30*

*Second Day at 9.00*

***Session 2 – Science and synergies for inner heliosphere investigations***

|              |   |                                 |
|--------------|---|---------------------------------|
| <b>9:00</b>  | <b>Joint operation scenario (part 2)</b>  |                                 |
| 9:00         | Summary of BepiColombo and Solar Orbiter exchange meeting at ESTEC  | V. Mangano                      |
| 9.20         | Solo-Bepi observation synergy WG coordinated by ESA   | A. Milillo                      |
| 9:30         | <i>Discussion</i>   |                                 |
| <b>9:45</b>  | <b>Solar wind and interplanetary medium science: BepiColombo and Solar Orbiter</b>  |                                 |
| 9:45         | Connecting space remote sensing and in situ measurements of solar wind  | E. Landi<br><i>(invited)</i>    |
| 10:05        | Connecting solar ground-based observations and space measurements   | V. Andretta<br><i>(invited)</i> |
| 10:25        | The nature and origin of quasi-periodic solar wind density fluctuations   | U. Villante                     |
| 10:40        | Interpreting spacecraft Observations with high resolution fluid and kinetic simulations in Arcetri                          | S. Landi                        |
| 10:55        | <i>Discussion and WG definition</i>   |                                 |
| 11:10        | <i>Coffee break</i>   |                                 |
| <b>11:40</b> | <b>Venus science: BepiColombo and Solar Orbiter flybys</b>  |                                 |
| 11:40        | Characterizing Venus' environment during spacecraft flybys  | T. Alberti                      |
| 11:55        | <i>Discussion and WG definition</i>   |                                 |
| <b>12:10</b> | <b>Mercury science: BC Mercury Flybys and Solar Orbiter nominal phase, BC orbit phase and Solar Orbiter out of ecliptic</b> |                                 |
| 12:10        | CME and particle acceleration   | A. Bemporad<br><i>(invited)</i> |
| 12:30        | Connecting exosphere ground-based observations and space measurements   | V. Mangano<br><i>(invited)</i>  |
| 12:50        | <i>Discussion and WG definition</i>   |                                 |
| <b>13:05</b> | <b>Concluding remarks</b>   |                                 |

*End of Workshop at 13.30*