

<b>PROJECT: Studi di Cosmologia</b>		<b>WP REF.: 9-6X2</b>
<b>WP TITLE: CMB weak lensing reconstruction</b> <b>SUB-CONTRACTOR: SISSA</b> <b>START EVENT: KO</b> <b>END EVENT: RF</b> <b>WP MANAGER: Carlo Baccigalupi</b>		<b>Sheet: 1 of 1</b>  <b>Issue Ref: 1</b> <b>Issue Date: 01/09/2016</b>

## 1. OBJECTIVES

The CMB Weak Lensing Characterization Work Package (CMBWLC) has the following main objectives: the reconstruction of the CMB distortion caused by lensing due to matter distribution traced by Galaxies along the line of sight, its subtraction from the B-mode CMB polarization anisotropies. The main links with other WPs are: CMB@LF (MI), CMB@HF (RMI), CMB from Space (BO), Inflationary GWs and Non-Gaussianity (PD), Point Source extraction (RMII), Astroparticle and Fundamental Physics, Support to LSPE and Simulations (INAF-OATs).

## 2. INPUTS

CMB anisotropy maps in polarization and total intensity. Characterization of noise statistics, angular resolution, foreground residuals resulting from FRM.

## 3. TASKS

- Task 1, Experimental design: support for forecasting foreground cleaning for de-lensing, T+0 - T+6M
- Task 2, De-lensing: characterization of LSS Tracers through Populations of Galaxies, T+0M - T+24M
- Task 3, De-lensing: production and testing of de-lensing algorithms, T+12M - T+24M
- Task 4, Data analysis: application of algorithms to data, T+30M – T+36M

## 4. OUTPUTS

- Deliverable 1 (from Task 1): Software for forecasting of foreground de-lensing capabilities, T+1M
- Deliverable 2 (from Task 1): Optimal configurations in terms of number of bands and sensitivity for feasibility studies, T+6M.
- Deliverable 3 (from Task 2): Characterization of Galactic populations, T+6M
- Deliverable 4 (from Task 2): Simulation of CMB GLs through Galaxy Catalogues, T+12M
- Deliverable 5 (from Task 2): LSS tracer algorithms in generalized domains, T+12M
- Deliverable 6 (from Task 2): Source Characterization and LSS algorithms from data, T+36M
- Deliverable 7 (from Task 3): prototype software from internal de-lensing, T+12M
- Deliverable 8 (from Task 3): prototype software from cross-correlation, interfaced with Galaxy catalogues, T+12M
- Deliverable 9 (from Task 3): validation on simulated and available data, T+18M
- Deliverable 10 (from Task 4): separation of CMB B-modes from cosmological GWs and from GL from data, T+36M



## 5. SCHEDULE

Tasks:

- Task 1, T+0 - T+6M
- Task 2, T+0M - T+24M
- Task 3, T+12M - T+24M
- Task 4, T+30M – T+36M

Deliverables:

- Deliverable 1: T+1M
- Deliverable 2: T+6M.
- Deliverable 3: T+6M
- Deliverable 4: T+12M
- Deliverable 5: T+12M
- Deliverable 6: T+36M
- Deliverable 7: T+12M
- Deliverable 8: T+12M
- Deliverable 9: T+18M
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