

# **WP9-6X2**

## **Weak Lensing Characterization and de-Lensing**

### **Stato di Avanzamento per RA1**

#### **Team**

**Carlo Baccigalupi**, Nicoletta Krachmalnicoff, Andrea Lapi, Vladimir Lukovich, Domenico Marinucci, Pasquale Mazzotta, Francesca Perrotta, Davide Poletti, Giuseppe Puglisi

#### **Tasks**

##### **Task 9-6X2.1: Support to Experimental Design**

- **Purpose:** Support for forecasting de-lensing for feasibility studies using semi-analytic techniques
- **Leaders:** Carlo Baccigalupi, Davide Poletti
- **Status:** forecasting software ready, case studies are in progress

##### **Task 9-6X2.2: Galaxy Populations and Large Scale Structure Tracers**

- **Purpose:** characterization of LSS tracers through population of Galaxies
- **Leaders:** Andrea Lapi
- **Status:** impact of astrophysical modeling on CMB reionization modeling ongoing

##### **Task 9-6X2.3: Production of Algorithms for de-Lensing**

- **Purpose:** production and testing of de-lensing algorithms
- **Leaders:** Carlo Baccigalupi
- **Status:** Collaboration

##### **Task 9-6X2.4: Data Analysis & Simulations**

- **Purpose:** application of de-Lensing to simulations and data
- **Leaders:** Carlo Baccigalupi
- **Status:** analysis for lensing reconstruction of Planck data for the 2017 data release is in progress, analysis of extra-Galactic sources from the Planck Compact Source Catalogue for exploitation in B-mode experiments is in progress, analysis for lensing reconstruction of PolarBear Large Patch Data is in progress

## Polarized Point Sources: Joint Data Analysis of Planck and NVSS Puglisi, Perrotta and SISSA Group

- Using Planck and ancillary observations for estimating the point source bias in B-modes as seen from a ground based experiment observing 1-5% sky fractions, as a function of angular resolution and sensitivity
- The Planck consists in about 30 polarized sources at 143 GHz with polarization fraction between 2 and 20%, full sky
- The NVSS catalogue observed about 2000 polarized sources, on 82% of the sky
- A Kolmogorov-Smirnov Test returns a p-value of about 0.28, indicating that the two samples come from the same distribution
- The two datasets are being combined for building a model for B-modes point source bias in BB power spectrum measurements



