

GALAXY CLUSTERING SWG

Work Packages and Pre-launch Key Projects



Euclid-France Galaxy Clustering meeting, April 20th, 2021

Galaxy Clustering (GC) SWG Work Packages

Leads: L. Guzzo, W. Percival, Y. Wang

WP #	Work-package	Leads	Priority
WP1	Observational Systematics	Pierluigi Monaco (Oct 2019-), Claudia Scarlata (Apr 2020-)	High
WP2	Galaxy Clustering End-to-End	Ben Granett (June 2018-), Sylvain de la Torre (Apr 2020-), Michele Moresco (Apr 2020-)	High
WP3	Likelihood Fitting	Julien Bel (Jan 2021-), Carmelita Carbone (Jan 2021-)	High
WP4	Non-linear effects	Martin Crocce (Jan 2021-), Zvonimir Vlah (June 2020-)	Medium
WP5	Higher-order stats	Cris Porciani (Jan 2021-), Emiliano Sefusatti (Jan 2021-)	Medium
WP6	Additional GC probes	Florent Leclercq (Jan 2021-), Cora Uhlemann (June 2020-)	Medium
WP7	Photo-z clustering	Stefano Camera and Isaac Tutusaus (Jan 2019-)	Medium
WP8	Voids	Nico Hamaus, Seshadri Nadathur, Alice Pisani (Apr 2020-)	Medium

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List of proposed Pre-Launch GC Key Projects

Pre-launch Science Key Project Document :

https://euclid.roe.ac.uk/attachments/download/35291/EUCL-UMI-PUB-8-001_APPROVED.pdf

Galaxy Clustering SWG (GC-SWG)

- KP-GC-1: End-to-end galaxy clustering simulations
- KP-GC-2: Galaxy Clustering Systematics
- KP-GC-3: Baryonic Acoustic Oscillations (BAO) extraction techniques: comparison and optimisation
- ~~KP-GC-4: Galaxy Clustering non-linear modelling~~ Merged with IST KP: KP-JC-2
- KP-GC-5: Higher-order clustering: data analysis and pipeline preparation
- KP-GC-6: Likelihood preparation
- KP-GC-7: Photometric Galaxy Clustering
- ~~KP-GC-8: Covariance matrix of clustering statistics~~ Being dissolved into other KPs

List of proposed Pre-Launch GC Key Projects

- KP-GC-1: End-to-end galaxy clustering simulations
Sylvain de la Torre, Michele Moresco (WP2)
- KP-GC-2: Galaxy Clustering Systematics
Pierluigi Monaco, Claudia Scarlata (WP1)
- KP-GC-3: Baryonic Acoustic Oscillations (BAO) extraction techniques: comparison and optimisation
Zvonimir Vlah, ?? (WP4)
- KP-GC-5: Higher-order clustering: data analysis and pipeline preparation
Cristiano Porciani, Emiliano Sefusatti (WP5)
- KP-GC-6: Likelihood preparation
Julien Bel, Carmelita Carbone (WP3)
- KP-GC-7: Photometric Galaxy Clustering
Stefano Camera, Isaac Tutusaus (WP7)

WP6 'Additional Probes' and WP8 'Voids': only Standard Projects (SP)

List of proposed Pre-Launch GC Key Projects

- **KP-GC-1: End-to-end galaxy clustering simulations**
Sylvain de la Torre, Michele Moresco (WP2)
- **KP-GC-2: Galaxy Clustering Systematics**
Pierluigi Monaco, Claudia Scarlata (WP1)
- **KP-GC-3: Baryonic Acoustic Oscillations (BAO) extraction techniques: comparison and optimisation**
Zvonimir Vlah, ?? (WP4)
- **KP-GC-5: Higher-order clustering: data analysis and pipeline preparation**
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WP6 'Additional Probes' and WP8 'Voids': only Standard Projects (SP)

Pre-Launch GC-related Key Projects



OU-LE3 (GC)

- KP-LE3-GC-1: 3D galaxy clustering in configuration space Federico Marulli, Matteo Viel
- KP-LE3-GC-2: 3D galaxy clustering in Fourier space Alexander Eggemeier
- KP-LE3-GC-3: Selection Function of the Euclid spectroscopic catalog and its subsamples
Ben Granett, Seshadri Nadathur

Joint SWG & ISTs cosmological science

- KP-JC-2: Non-linear modelling Martin Crocce, Carlo Giocoli, Alkistis Portsidou
- KP-JC-3: 3D Likelihood preparation Vincenzo Cardone, Shahab Joudaki, Valeria Pettorino
- KP-JC-4 & KP-JC-5 : Cross-covariance of Euclid probes **Open call..**
- KP-JC-7: Multi-messenger cosmology: combining Euclid with GW signals Carmelita Carbone, ..?

CMB-Cross (XCMB)

- KP-CMBX-3: ISW-GC cross-correlation
- KP-CMBX-5: Cross-Correlation of thermal SZ (tSZ) and CMB lensing with galaxy clustering

Next steps

- Open calls for leading key papers
 - 53 key papers for KP-GC
 - 13 key papers for KP-LE3-GC
 - 17 key papers for KP-JC
 - 3 key papers for KP-CMBX
- Opening of standard projects (and standard papers)
- The next step will be the call for DR1 Key Projects