

zSURVEY

Results/Status & Roadmap

Spectroscopic Redshift Surveys in OCEVU
Dark Energy, Galaxy Evolution & Reionization

En chiffres

- Début du projet: 2013
- Durée du projet: 4(+3) ans
- Objectifs du projet:

“Our project is to **trigger synergy** and **foster collaboration** between OCEVU members strongly involved in existing leading international surveys [...] with the aim of **developing expertise and visibility for Euclid** [...]

- (a) mapping out how the galaxy population evolves with redshift
- (b) unveiling the first galaxy population at the end of the reionization
- (c) precise cosmology on the nature of dark energy”

OCEVU Request for 2016

Postdoctoral extension 1 year for Alice Pisani

“They ask to prolong the PD working **on the AP tests and on GOYA/EMIR by 1 year** (they gave back 1.5yr of previous PD allocation because their candidate was awarded a permanent position) [...]

After inspection, it looks that the PD, Alice Pisani (who did her PhD at IAP), is active (several publications, participation in conferences, etc.), but we also note that, surprisingly, most of her recent publications do not involve other OCEVU members. Nevertheless, these published studies are relevant to the goals (AP test) presented in the proposal and **we may support the 1yr extension if OCEVU funding permits** [...]

Les financements sont accordés sous condition de respecter les recommandations du CS:

- implication directe du postdoc dans le projet OCEVU”

OCEVU Request for 2016



PhD to strengthen the contribution on eBOSS

“They ask for a new PhD candidate (at LAM) to improve the use of the RSD measured in spectroscopic surveys as a probe of gravity, especially the growth factor. The project should improve the modeling of RSD and study the problems of the statistical analysis. *The technique will then be tested on existing surveys, especially eBOSS and lead to constraints on Dark Energy and modified gravity [...]*

The PhD request is relevant, while not original (refocused toward RSD developments with respect to the previous proposal). We note that the team failed in hiring a PhD student in 2015 because the foreseen candidate resigned before being appointed (half an OCEVU grant had been obtained). It is not explained whether the student resigned because she/he preferred another offer or for other reasons. *Anyway, since the previous OCEVU PD S. de la Torre has just been hired on a permanent, full research, position, manpower dedicated to this research line is now available.* Therefore, the PhD request does not appear time-critical for the moment, though the thesis proposal is legitimate and relevant. *Moreover, as stated below, having a clearer view of the group's achievements in e-BOSS science in the last two years would help better evaluate the PhD proposal.”*

CS: The PhD request is relevant, and we support it it though with moderate priority. Rank A-

OCEVU Request for 2016

2 eBOSS tickets 34k€

Too few details are given as for the usage of the e-BOSS tickets last year. **There seems to be no concrete result achieved and driven by the OCEVU members at the level of the e-BOSS collaboration so far**, at least from the publications reported in the proposal, and after independent inspection. **It is not clear how the OCEVU group performs in the internal competition.** Given the very high cost (~120k€ in total over the next four years), we would recommend to organize an extensive review to

- understand how essential those tickets are to the project,
- how they are used,
- for which/whom benefit,
- whether alternative funding could be found.

Due to the lack of details, in particular about the achievements within the e-BOSS collaboration, we cannot recommend funding any e-BOSS tickets **for the moment**.

Les financements sont accordés sous condition de respecter les recommandations du CS :

- **justification de l'utilisation et de la valorisation des 2 tickets eBOSS pour les objectifs d'OCEVU dans la prochaine évaluation**

Flashback in Dec 2014: eBOSS tickets

We note for the moment the collaboration has yet not achieved a publication which should be put as a priority for the coming year. The proponents argue that, at present time, the best opportunity for accomplishing their goals is that the team be involved in the currently ongoing wide-field spectroscopic survey eBOSS. They had already identified at the beginning of the zSurveys project the necessity to be full members in the eBOSS survey, and the French Participation Group got some funding from agencies, i.e. CEA, INSU and IN2P3 (ongoing). However **it is crucial that the local teams reach a critical mass in the eBOSS project**, and it is why they request financial resources from OCEVU to support two supplementary PD members (one at LAM and another one at CPPM) in addition to the two already funded members (one at LAM and another one at CPPM) [...] It is important for the OCEVU members to acquire this membership, and we agree that this request should be given particular attention. Nevertheless, we remark that two eBOSS tickets amount to more than 30k€, which is already a significant fraction of the total OCEVU funding.

OCEVU Request for 2016

 **SDSS/DESI 12,000€ (5x2.4k€) + GOYA Travel 4,000€**

The requested travel budget of 16k€ (in addition to the 34k€ corresponding to the e-BOSS tickets) is strongly over-estimated, as **it seems that only a few participants are really committed to the project**. We recommend to decrease this amount significantly, down to 5k€. This should cover the IRAP-LAM meetings as well as participations to conferences for the most active project members.

COMEX: 6,000€ + 2,000€ (postdoc) + 2,000€ (doctorant)

➔ **Good news: The eBOSS meeting is in Lausanne in 2016**

<https://trac.sdss.org/wiki/eBOSS/Meetings/epfl2016>

Current members in the proposal

Arnouts	Connection with ANR-SPINE and VIPERS and CLAUDS-PFS
Bina	MUSE data reduction
Cuby	Contribution on DESI
Cousinou (eBOSS)	Galaxy clustering analysis in combination with Weak Lensing with BOSS and CHFTLS data. Alcock-Paczynski test applied on cosmic voids with BOSS/eBOSS data.
de la Torre (eBOSS)	Preparation of the cosmological weak lensing mocks, and optimization of the RSD and WL combination probe
Ealet	Contributions to Euclid project – Coordination zSurveys at CPPM
Escoffier (eBOSS)	PI of the ANR OMEGA BOSS. Galaxy clustering analysis in combination with Weak Lensing with BOSS and CHFTLS data. Alcock-Paczynski test applied on cosmic voids with BOSS/eBOSS data.
Ilbert	Contribution to VUDS, VIPERS, PFS and Euclid projects
Jullo (eBOSS)	Preparation of the cosmological weak lensing mocks, and ELG analysis in combination with Weak Lensing. Analysis of VIPERS and BOSS data combining galaxy clustering and weak lensing
Le Fèvre	Contributions to VIPERS, VUDS(PI), PFS and Euclid (French Reference Scientist)
Pello	Contribution to MUSE-GTO (co-responsible in lensing clusters), GOYA (core team) and Euclid projects - Coordination zSurveys at IRAP
Pieri (eBOSS)	Contribution to BOSS and eBOSS (core team), WEAVE (QSO absorption survey Lead) and DESI (absorption cosmology Working Group Chair)
Pisani (eBOSS)	BOSS and eBOSS data analysis using cosmic voids
Tilquin	Combination of probes - CosmoMC
Tresse	Coordination of the OCEVU-zSurveys project. Coordination zSurveys at LAM. Contributions to VUDS, GOYA (core team), PFS and Euclid projects

Work plan for 2016

- $z > 6-7$ luminosity function, LAE+LBG properties
- VUDS SFRD history, merger rate $2 < z < 6$
- VIPERS: Final results on RSD and evolution, HOD
- VIPERS+WL first results on RSD+WL
- eBOSS on-going: DR13 in Jul 2016
- PFS: workshop at LAM on the development of galaxy templates
- Euclid: Test redshift measurement pipeline

Work for 2017

- Constraints on reionization $z > 6$
- Mass assembly and SFRD $2 < z < 6+$
- Constraints on dark energy RSD, RSD+WL