Discussion & Beers

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BEER& BALLOTS

I. Cosmology after “Stage-X” (>2030)

[S] designates a spectroscopic redshift survey, **[I]** an imaging survey and **[R]** a radio survey.

Projects	Status	Ref.
[S] VIPERS	2009-2015	http://vipers.inaf.it/
[S] SDSS-III/BOSS	2009-2014	http://www.sdss3.org/surveys/boss.php
[I] DES	2012-2017	http://www.darkenergysurvey.org/
[I] VST/KIDS	2011-2016	http://kids.strw.leidenuniv.nl/
[I] eROSITA	2015-2020	http://www.mpe.mpg.de/erosita/
[S] HETDEX	2015-2017	http://hetdex.org/
[S] SDSS-IV/eBOSS	2014-2020	http://www.sdss3.org/future/eboss.php
[I+S] Euclid	2020-2027	http://sci.esa.int/euclid/
[S] DESI	2018-2022	http://desi.lbl.gov/
[I] J-PAS	2015-2020	http://j-pas.org/
[S] 4MOST	2019-2024	http://www.4most.eu/
[I] VISTA-VHS	2010-2017	http://www.vista-vhs.org/
[I] iPTF	2013-2015	http://ptf.caltech.edu/iptf/
[I] ZTF	2016-2020	-
[I] LSST	2023-onwards	http://www.lsst.org/
[R] LOFAR	2013-2018	http://www.lofar.org/
[R] Meerkat SKA-Pathfiner	2016-onwards	http://www.ska.ac.za/meerkat/
[R] SKA	2019-onwards	http://www.skatelescope.org/
[R] CMB (COrE/PRISM)	Proposal	http://www.prism-mission.org/
[R] PLANCK	2009-2014	http://sci.esa.int/planck/

Plus many other experiments including Dark Matter detectors

- Are we missing any KEY experiments?
- Are we happy with theory developments?

1. Is LCDM the most likely apocalypse scenario?

What is your guess?

- YES
- NO

2. Dark Matter will be found before 2030

- YES
- NO

After 10 years of DE research
Was Simon right?

Fundamentalist physics: why Dark Energy is bad for Astronomy

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Astronomers carry out observations to explore the diverse processes and objects which populate our Universe. High-energy physicists carry out experiments to approach the Fundamental Theory underlying space, time and matter. Dark Energy is a unique link between them, reflecting deep aspects of the Fundamental Theory, yet apparently accessible *only* through astronomical observation. Large sections of the two communities have therefore converged in support of astronomical projects to constrain Dark Energy. In this essay I argue that this convergence can be damaging for astronomy. The two communities have different methodologies and different scientific cultures. By uncritically adopting the values of an alien system, astronomers risk undermining the foundations of their own current success and endangering the future vitality of their field. Dark Energy is undeniably an interesting problem to attack through astronomical observation, but it is one of many and not necessarily the one where significant progress is most likely to follow a major investment of resources.

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1. Large astronomical projects, even those for which Dark Energy issues are a prime science driver, should continue to be designed to push back the frontiers in many areas of astrophysics.

2. Astrophysicists should recognise the cultural differences between their own field and high-energy physics.

3. Prioritisation of projects should be based not only on the case for their prime science goal, but also on the extent to which they will enable future advances in astrophysics as a whole

4. Large projects require large teams and long time-scales. The negative effects of this on young scientists' opportunities for creativity can be drastic and must be mitigated by promoting a diverse se science goals for exploration by young team members.

5. Credit for scientific contributions must be clearly assigned to those responsible for the original insights and for the creative aspects of the enabling work.