

eLISA Data Analysis Working Group

eLISA Consortium Meeting, APC, 22nd October 2012

Main topics

- Data and instrument Characterisation
- Astrophysical Data Analysis
- (Reporting from) LPF data analysis

Data and Instrument Characterisation

- During operations, who does what?
 - ESA, science team, both?
- Main activities
 - commissioning, characterisation, calibration
- LISA DA infrastructure
 - Infrastructure components
 - data handling and storage
 - data analysis tools
 - system simulators
 - produce 'realistic' data sets
- Experiments
 - defining characterisation experiments
 - what can we take from LPF?
 - what's missing in LPF which could be useful?
- Continuous maintenance and characterisation
 - system identification to maintain peak performance
 - characterisation of glitches, noise non-stationarity, data quality

Astrophysical Data Analysis

- Continue developing DA algorithms on the Gaussian noise with increasing complexity of the astrophysical sources and realism of the models for GW signals
 - Full enchilada
 - BH parameters from astrophysically motivated distributions
 - Include realistic merger and ring-down to GW signal from BBHs
 - Using more complex EMRI models
- Revisit DA algorithms on the more realistic simulated noise
 - simplify astrophysical content of the data but assess/adjust search
 - algorithms in presence of the non-Gaussian features of the noise
 - coupling data characterisation with astrophysical searches

Organisation

- One working group
 - input from, and close collaboration with, the Science of Measurement group
 - develop close interaction with LPF data analysis team
- Identify initial work-packages
 - continued algorithm development (MeLDC)
 - allow for new groups to come in, recast old MLDCs
 - kick-off characterisation work
 - development of a modular eLISA system simulator
 - others to come later
- Resources:
 - For MeLDC we are ok-ish for now
 - From LPF->LISA side, we need a critical mass to get the modelling effort going
 - ≥ 2 students (+1 postdoc)
 - A.S.A.P.
 - travel funding
 - local institute money?
 - consortium fund?
 - EU money?

A Possible Time-line

