

JENAM 2010 Round Table Discussion Summary 9th September 2010

Current facilities (10 years time scale)

- VLTI top priority for European interferometry.
 - VLTI should work at the original specifications and efficiently.
 - Success of 2nd generation instrumentation depends on infrastructure support.
 - The VLTI uses the same resources as the unit telescopes “competing” for support at the mountain. The CHARA resources are fully focused on the array.
 - Investments should improve existing infrastructure and deployment of 2nd generation instrumentation.
 - Address VLTI sensitivity, allowing faint science
 - Lower-noise detectors
 - fringe tracking
 - AO in the ATs
 - phase referencing
 - Improve the imaging capability of the VLTI
 - More information from a single observation.
 - enable the use of more baselines than currently offered.
 - hybrid combination of ATs and UTs
 - Combination of up to 6 telescopes “easily” achievable; upgrade to 8 telescopes combination seems more difficult given the available infrastructure.
 - Snapshot capability allowing imaging of the temporal evolution of the objects.
 - increase the VLTI angular resolution
 - Access to longer baselines
 - Opening the visible domain to the VLTI
 - Address easy of use and robustness
 - visiting astronomers find much it more demanding than single telescope instruments.
 - In CHARA the most popular instrument is the one easiest to use.
 - Too many data packages for the same instrument confuses users.
 - User friendly data analysis packages.
 - Scientific return versus user effort.
 - Scientific return versus available data from a run.
 - High data acquisition duty cycle increases data return, calibration and ultimately user friendliness of the data.
 - CHARA array usually delivers reduced data, the HARPS instrument delivers science grade data (calibrated radial velocities).
- ESO and VLTI community interaction
 - European Interferometry Initiative and national representatives at ESO (Council, STC, STC-LSP subpanel).
 - VLTI plan for the long term should be developed following interactions between ESO and the VLTI community. A small working group could be set up in order to draft a first document.
- The scientific successes with existing facilities will determine the fate of interferometry. Emphasis on high impact science.

- Attracting new users to the VLTI
 - Imaging capability to allow obtaining complex spatial information on sources and not just sizes.
 - Sensitivity should be improved allowing faint science.
 - Ease of use of the delivered data.
 - Offer high quality service to users as is currently done at IRAM and VLA and will be done by ALMA (through the ARCs).
- VLTI scientific success is based on open time model. CHARA closed model keeps a high scientific output by significant collaboration across the community.

VLTI in the E-ELT era (10-20 year time-scale)

- The US Decadal Survey supports existing infrastructure and not developing new instruments.
- Aperture masking in the E-ELT might be competitive with the VLTI.
- The VLTI versus E-ELT gap increases at visible wavelengths, the VLTI should explore the visible regime.
- There is a need of a coherent plan, the VLTI long range plan should include this time-scale.
- Third generation instrumentation
 - discussion of 6 telescope combination versus 4 telescope combination
 - Two more ATs on the mountain
 - Hybrid AT/UT combination

Future Facility (+20 years time-scale)

- A post-VLTI facility will only be possible after ALMA, E-ELT and SKA, i.e. in 20 years.
- It is important to start planning for a long time line, i.e. first plans on Hershel started 30 years before launch, at the time of IRAM initial operations.
- Lack of long term project can open the terrain to competition from other large scale projects.
- The VLTI is the short-mid term priority of Europe interferometry but the community should be working towards a future major facility.
- Convincing science cases for such a facility are missing, and therefore the facility design is not clear (unit telescope size, large sparse array or compact array).
- Possible science could be high redshift galaxies morphology and exoplanets surfaces.
- Brand name must be defined, as e.g. for the case of SKA.
- Significant work is required in many fronts, including scientific and technological development.
- Concept studies (like CARLINA, ELSA, OHANA) should be encouraged and supported at the level of phase A and regularly presented and discussed at international meetings.