

Summary of the science discussions during the Special Session "Science with present and future interferometers" and ASTRONET session at EWASS2013

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Abstract. The main goal and achievement of the Special Session "Science with present and future interferometers" and "ASTRONET" session at EWASS2013 (European Week of Astronomy and Space Science; 10 and 11 July 2013, Turku, Finland) were to bring together Europe's scientists using the openly available interferometric facilities (like VLTI and CHARA) to hear about the current results, but also to discuss the future of this technique in the light of the upcoming ELTs and other future facilities (GAIA, ALMA, SKA, etc.).

1. Summary

The excellent list of speakers responded enthusiastically to the challenge of summarizing their work and highlight scientific results to a wider audience. The breadth of science being exploited by modern optical arrays is impressively long, and extended from rather classical domains (instigation of stellar diameters and binarity) to high angular resolution images of stellar surfaces, resolving the origins of planet formation in young stellar disks, solving some of the mysteries of enigmatic, rare and complex sources, learning about fundamental parameters of black hole feeding. Clearly, in the age of gigantic all-sky surveys, optical and infrared interferometry plays the complementary role of a giant night sky microscope, capable of resolving very fine details in a considerable number of astronomical key objects.

The invited speakers reported several examples of those incremental sensitivity improvements of modern interferometers over the last years. These have now allowed to conduct sample studies of statistical sizes leading to transformational insights in the areas of star formation and feeding of active black holes in galactic nuclei.

At the end of the session, a detailed review of the scientific productivity of the VLTI was given as a start to discuss ways into the future. The well attended session showed the interest of the wider astronomical community in the technique, in particular where long baselines, and high spectral resolution of spectro-interferometry allow access to new observables of physical processes in and around stars and black holes. The last decades of technological groundwork has lead to a maturity, which in the short term future will give the upcoming commissioning of the next generation of VLTI and CHARA instruments a higher scientific impact.

In addition, for the longer term future, we are now in a position to plan on robust technological grounds for a new or significantly enhanced facility, with laser-guide star adaptive optics assisted large telescopes with several 100m long baselines. Such a new facility, responding to the astronomers demand for even higher dynamic range interferometric imaging and improved sky coverage than offered today, will critically rely on the international community and community networks.

The complete list of talks is available as pdf and video files via the webpage: <http://www.ss7.ulg.ac.be/programme.php>

Please visit the "Planet Formation Imager" web page

<http://planetformationimager.org> for some more recent and important actions taken following the present 2013 international Colloquium at the Haute-Provence Observatory.