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JRA4

JRA4 REPORT OF ACTIVITY
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1 WP1.1: Concept to feasibility studies

The first phase of this work package (Jan04-Jun05) is over. The detailed concept studies of the six second generation instruments for the VLTI (APRES-MIDI, BULK OPTICS, VEGA, VIDA, VITRUV, UVES-I) have been presented at the common ESO/EII common workshop of April 2005 in Garching.

At the end of the Garching meeting (April 8th 2005), the Scientific Council of the EII (Euro-Interferometry Initiative) has made an evaluation of the concepts. It has classified APRES-MIDI and VITRUV as top priorities and selected these instruments for feasibility studies.

1.1 Milestones and Deliverables

M1: ESO/EII common workshop: "The Power of Optical/IR Interferometry: Recent Scientific Results and Second Generation VLTI Instrumentation", 6-8 April 2005. Done

D2: Instrument concept reports. Done (see the references below)

D3: List of contributors to feasibility studies. Will be defined in September 2005

1.2 Meetings

- ESO/JRA4 common workshop on second generation of VLTI instruments: 6-8 April 2005
- EII Scientific Council meeting: April 8th 2005, Garching

1.3 Concept reports

http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1110-0001.pdf (UVES-I)
http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1120-0001.pdf (Bulk Optics)
http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1130-0001.pdf (APRES-MIDI)
http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1140-0001.pdf (VEGA - Concept)
http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1140-0002.pdf (VEGA - Science)
http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1150-0001.pdf (VIDA)
http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1160-0001.pdf (VITRUV - Concept)
http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1160-0002.pdf (VITRUV - Science)
http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1160-0003.pdf (VITRUV - Manag.)
http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1160-0004.pdf (VITRUV - System)

1.4 Reality vs. Intentions

Matched

1.5 Future plans

The next step will consist, according to schedule, in making the feasibility study of the selected second generation VLTI instruments. The EII Scientific Council has

classified APRES-MIDI and VITRUV as top priorities. However, the last word goes to ESO who will make the final selection during the second semester of 2005. The new list of contributors to WP1.1 should be know after ESO decisions.

1.6 Impact of a change in WP financial allocation

Most of the ressources within WP1.1 come from the "big" Laboratories and not from Europe. Leading countries have yet spent most of the European funds which were given to them. Hence for these countries, the impact of a change in WP1.1 financial allocation will not be significant. A decrease of WP1.1 financial allocation will mainly affect "small" countries, with small budget, and will make their integration to the project more difficult.

2 WP1.2: Cophasing and Fringe Tracking

The work package 2.1 is focused on analysis and optimization in three areas:

- Current cophasing instrumentation performances
- Measurement operations
- Cophasing scheme for future instruments

A working group has been settled for WP1.2. Tasks have been identified and distributed among participants. A full progress report can be found in the deliverable D2, and the most recent results will be published in the proceedings of the ESO/EII common workshop of April 2005, held in Garching.

The main project supported by EU funds within WP1.2 concerns the work in progress at INAF-OATo on the design and analysis activity for the PRIMA FSU and the setup optimization for FINITO. The work on integration of the PRIMA FSU A and B is progressing, with preliminary acceptance in Europe and delivery to ESO planned for end July 2005.

2.1 Deliverables

D2: 1st Progress Report on CFT. Done
See http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-1200-0001.pdf

2.2 Papers presented at the ESO/EII workshop

Borkowski et al.: "The dispersed speckles cophasing system for direct imaging with VIDA"
Buscher et al.: "A photon efficient multi-way combiner for the VLTI"
Cassaing: "Multiple beam fringe tracking for the VLTI"
Gai et al.: "Multiple beam fringe tracking at VLTI"
Ribak et al.: "Multiple anamorphic beam combination"

2.3 Reality vs. Intentions

Matched.

2.4 Future plans

Based on the current status of the activity in the various groups, the definition of the basic tasks of WP1.2 will be reassessed during the meeting of the working group planned in Cambridge on October 2005.

2.5 Impact of a change in WP financial allocation

A decrease of WP1.2 allocation will have a direct negative impact for the activities related to cophasing with VLTI but also an indirect negative impact for the activities related to cophasing problems with ELT segments.

3 WP2: Off-line data reduction software

The WP2 is aimed at delivering two successive versions of a software of general use in a 5 years span, starting from "scratch". This software aims at facilitating the use of large modern interferometric facilities such as ESO's VLTI to an end-user non specialist of Optical interferometry. Due to the complexity of the task the work is splitted into 5 tasks:

- WP2.1: General Management and User Support
- WP2.2: Common Software
- WP2.3: Model fitting
- WP2.4: Astrometry
- WP2.5: Image Reconstruction

The work packages 2.3, 2.4 and 2.5 evolve quite independently from each other, and provide an aspect of the whole package. Work packages 2.1 and 2.2 coordinate, provide common tools for the three other packages, and are responsible of the software integration and tests. All the Tasks are scheduled to arrive at the same time at each software acceptance release.

See http://eii-jra4.ujf-grenoble.fr/doc/approved/JRA4-TRE-2000-0004.pdf for the detailed progress report of first semester 2005.

3.1 Reality vs. Intentions

The WP2 project as a whole, and considering the delays that occurred in the first six months, has progressed according to both its internal schedule, with its numerous deliverables, according to the EU deliverables and milestones.

3.2 Future plans and Impact of a change in WP financial allocation

The next 18 months will be crucial in the deployment of the activity since the project enters now a phase of production of code from all participants after the design of the software specifications. The user documents produced request a number of functionalities that will not be immediately present in the first version of the software that will be issued in the coming period. The complete set of user requested functionalities may however be available at the end of the project, but, depending on the complexity of the software specifications needed, a supplementary effort may be requested from Opticon then to achieve fully the objectives.