

Subject: [allemploy] FYI: 10 Oct BIWEEKLY CALENDAR OF THE ALMA PROJECT at NRAO
From: "Alwyn Wootten" <awootten@nrao.edu>
Date: 10/11/2005, 11:54 AM
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BIWEEKLY CALENDAR OF THE ALMA PROJECT at NRAO
Oct 10, 2005 - Oct 24, 2005

***** THIS FORTNIGHT*****
Construction on the Technical Building (which contains all common equipment, such as the correlator) at the 16,000 ' elevation Array Operations Site began with groundbreaking last week. This construction phase, on the foundations and shell, should finish by Spring 2006. This building is a North American deliverable.

Some 74 panel members, ALMA Personnel and assorted interested parties meet meet for the Cost Review of the rebaselined ALMA budget in Garmisch-Partenkirchen 13-16 October.

The Senate and the House have voted on the FY2006 Appropriations Bills which cover NSF. Both committees recommended the requested\$49,240,000 for the Atacama Large Millimeter Array. A conference committee must meet to resolve differences before sending the bill to the President for his signature.

ESO Council on 29-30 September, "reaffirming the strategic importance of ALMA, and its determination to ensure the scientific success of ALMA for European astronomy and its commitment to ALMA in collaboration with its partners in North America and Japan, ...decides that the estimated increase ...in the cost to completion of the ESO share of the bilateral ALMA project is affordable and compatible with ESO's strategic priorities, ... requests the Finance Committee to proceed to decide on the proposal to award a contract for the production of the ESO ALMA antennas."

ESO Finance Committee on Oct 5 approved award of the EU production antenna contract to the AEM - ALCATEL ALENIA SPACE / E.I.E. Industrial Engineering / MT AEROSPACE consortium.

Fabio Biancat Marchet has been nominated to become the IPT Deputy Leader for the Back End project in ALMA. Fabio has accepted this nomination, and his appointment is immediately effective. As planned, Fabio takes over from Alain Baudry, who continues to serve as the IPT Deputy Project Leader for the Correlator. Hans Rykaczewski, European ALMA Project Manager, thanks Alain, and we join him, for his dedicated and excellent work for the ALMA Back End project over the pastvolved in many six years.

Past issues of this Calendar may be viewed at <http://www.cv.nrao.edu/~awootten/mmailcal/ALMACalendars.html>
See also the JAO ALMA Calendar overview at: http://www.alma.cl/alma_project

General Happenings

Santiago: The JAO top-level personnel will be in Germany for the Cost Review this week.

OSF: ALMA Camp is completed with 30 beds. Contractors camp with 120/200 beds will be done November, is nearly complete now; dining facilities (80 per sitting) opened last week. The OSF mass excavation and fill are complete.

AOS: 30 of 43km of road done (access with normal vehicles); the final 13km is in the finishing process, meaning access may be difficult for large vehicles. The AOS Technical Building was begun 3 Oct 2005;

ATF: During 17-Oct to 28-Oct, Vertex will be working on metrology development on the Vertex antenna in preparation for the manufacture of the production antenna.

DAILY CALENDAR (Times EDT) see

<https://wikio.nrao.edu/bin/view/ALMA/AlmaCalendar>

Mon 10 October Columbus Day Holiday, US and Chile

All Day: Preview of Cost Review Sessions, Garching

Tue 11 Oct

All Day: Preview of Cost Review Sessions, Garching

Wed 12

Morning: Preview of Cost Review Sessions, Garching

11:00 am: SSR Telecon

2:00 pm (Munich time): Travel to Cost Review Sessions, Garmisch

Thu 13

All Day: Cost Review Sessions, Garmisch

Fri 14

All Day: Cost Review Sessions, Garmisch

Sat Oct 15

All Day: Cost Review Sessions, Garmisch

Sun Oct 16

All Day: Cost Review Sessions, Garmisch

Mon Oct 17

Tue Oct 18

10:30 AM-11:30 AM: JAO IPT Telecon

4:00 PM-5:00 PM: NAScienceIPT teleconference (open to all interested parties) (434)296-7082

Wed Oct 19

Thu Oct 20

Fri Oct 21

Sat Oct 22

Sun Oct 23

***** UPCOMING EVENTS *****

ALMA Calendar--<https://wikio.nrao.edu/bin/view/ALMA/AlmaCalendar>

* Oct 13-16 -- ALMA Cost Review, Garmisch, Bavaria

* Oct 17-18 -- ESO Science and Technical Committee meets

* Oct 26-27 -- AUI Board, Santiago

* Nov 1-2 -- ALMA Board, Santiago

* Nov 8-9 -- ESO Finance Committee

* Nov 8-9 -- ALMA-J Antenna SRR, Osaka

* Nov 10-11 -- ACA System Review, Tokyo

* Nov 21-22 -- SSR Meeting, Charlottesville

* Nov 30-Dec 1 -- National Science Board meets

* Dec 7-8 -- ESO Council Regular Meeting

* Jan 4-7 -- URSI/NA, Boulder

* Jan 12-14 -- ALMA Zmachines workshop

***** TECHNICAL NEWS *****

ALMA Memo # 532: The ALMA 3-bit 4 Gsample/s, 2-4 GHz Input Bandwidth, Flash Analog-to-Digital Converter

Author: Alain Baudry

A high speed low power analog-to-digital converter (ADC) using the 0.255m BiCMOS SiGe technology from ST Microelectronics has been developed to meet the specifications of the ALMA project. The main features of this ADC are: 3-bit resolution (8 quantization levels) in Gray code, an input bandwidth from 2 to 4 GHz, 4 GHz sampling rate (and possible operation up to 5 GHz), LVDS standard I/Os and low power dissipation (< 1.4 W). We present in this paper some details of our ADC design and performance results obtained with the ALMA digitizer assembly including one ADC followed by three high speed

1:16 deserializers. ALMA production acceptance tests are briefly described.

A pdf copy of this memo may be obtained at:

<http://www.alma.nrao.edu/memos/html-memos/alma532/memo532.pdf>

ALMA Memo # 538: Array Configuration Design of the Atacama Compact Array
by: Koh-Ichiro Morita (NAOJ) and Mark Holdaway (NRAO)

In this memo, we present a design concept of the array configuration of the Atacama Compact Array (ACA) and strawperson plan of the configuration design. Basic parameters of the array configuration of ACA were discussed from the analysis of the sensitivity in $\{ \text{it uv} \}$ plane of mosaicing observations with the ACA and the ALMA. For detailed design, it was shown that the compact spiral concept is appropriate to meet major requirements for the ACA, which are to obtain higher $\{ \text{it uv} \}$ response at the short $\{ \text{it uv} \}$ spacings and better sidelobe performance. To satisfy the sky coverage requirement, the north - south elongation is needed. We propose that the ACA system consists of two configurations, one (Inner Array) is a compact spiral array with small north - south axis ratio (x 1.1) and the other (NS Array) is a dedicated configuration with large north - south axis ratio (x 1.7). In current actual plan, inner 6 pads are shared by both configurations.

View a pdf version of ALMA Memo #538 at:

<http://www.alma.nrao.edu/memos/html-memos/alma538/memo538.pdf>

ALMA Memo # 540: High carrier suppression double sideband modulation with integrated LiNbO3 optical modulators for photonic local oscillators
by: T. Koh-Ichiro Morita (NAOJ), Mark Holdaway (NRAO)

2005-09-29

We proposed high carrier suppression double sideband modulation using a Mach-Zehnder (MZ) optical modulator with active trimming technique. The modulator has a pair of trimmers in the arms of the MZ structure. The trimmers can compensate amplitude imbalance in the MZ structure due to fabrication error, where the imbalance generates residual carrier in double sideband suppressed carrier (DSB-SC) modulation. We demonstrated high carrier suppression ratio of 50dB in DSB-SC modulation at 10.5GHz, by using an integrated MZ LiNbO3 modulator, where each arm has an intensity trimmer consisting of a sub MZ interferometer. In addition, we also proposed a novel scheme for the fourth order harmonic generation with two MZ modulators. A photonic local signal of 42GHz was generated from a 10.5GHz modulating signal. The upper limit of modulating frequency in the state-of-the-art is about 50GHz, so that we can easily generate 200GHz photonic local signals by using this technique.

View a pdf version of ALMA Memo #540 at:

<http://www.alma.nrao.edu/memos/html-memos/alma540/memo540.pdf>

*****ALSO OF INTEREST*****

Bill Shillue writes:

"The Nobel Prize in Physics was awarded to John L. Hall of JILA and NIST this week. He is in a small way linked to the ALMA project,

http://www.nist.gov/public_affairs/releases/2005_Nobel_Prize_Hall.htm

"He contributed to the invention of the laser, the precise definition of the second, unprecedented stabilization of lasers, and numerous innovations in optoelectronic laboratory techniques. His understanding and use of modern high speed electronics has been invaluable for the development of the world's most accurate and stable laser oscillators. One of his techniques is called the Pound-Drever-Hall method, which is now used

universally for laser frequency stabilization. An interesting footnote is that "Pound" is R.V. Pound, an honorary member of the AUI Board of Trustees, who was the originator of the technique but applied it to microwave oscillators..."

"Dr. Hall's work in the precise stabilization of clocks and measurement of time led to further work in transferring the stable clocks from one laboratory to another (over optical fiber). This is exactly what we are trying to do in the ALMA LO reference system, except that we are transferring phase from a central building to the antenna. Our effort is unique in transferring the frequency and phase of the lightwaves across a moving reference frame. We have incorporated several of the techniques developed by Hall and his group at JILA and NIST in our work. Two of these techniques originated by Hall are implemented in the ALMA line length corrector. The first is the use of electronic frequency division to reduce the phase noise of the recovered lightwave in a optical phase measurement system. The second is the use of an optical fringe counter using high-speed electronic counters [Journal of Quantum Electronics, April 1987]. "

-----TENURE TRACK ASTRONOMER POSITIONS-----

The National Radio Astronomy Observatory (NRAO) invites outstanding applicants for tenure track astronomer positions. In the next few years, the NRAO expects to make one or two appointments per year. Appointments are not restricted to radio astronomers. See

http://www.nrao.edu/administration/personnel_office/careers.shtml#tenure

-----ALMA Postdocs-----

2006 Postdoc Position at the North American ALMA Science Center/ALMA Construction

The National Radio Astronomy Observatory expects to invite applications for a NRAO Postdoctoral appointment at the North American ALMA Science Center in Charlottesville, Va. These positions provide 50% time for independent research, with the remaining 50% assigned to project and operational duties at the sites. The position is funded by a grant from the National Science Foundation through the ALMA Construction Project.

2006 ALMA Postdoc Positions at ESO

For the first time this year, four dedicated ALMA/ESO fellowships will be offered (two in Garching and two in Santiago) in addition to the several regular fellowships offered at both places. Please see:

<http://eso.org/gen-fac/adm/pers/vacant/fellows2005-6.html>

Please send information for upcoming calendars by Friday evening of the preceding biweekly period to Jennifer Neighbours or Al Wootten via e-mail (jneighbo@nrao.edu or awootten@nrao.edu).

The calendar will be issued between late Friday and sometime on Monday by e-mail to all NRAO scientific staff members and anyone else interested. A specific mailing list, alma-info, has been created for anyone wishing to receive it.

Past issues are available at

<http://www.cv.nrao.edu/~awootten/mmailcal/ALMACalendars.html>

Allemploy mailing list

Allemploy@listmgr.cv.nrao.edu

<http://listmgr.cv.nrao.edu/mailman/listinfo/allemploy>