Report on Second CLIC - ILC Collaboration meeting, CERN, 13 May, 2008.

The CLIC - ILC Collaboration was initiated at CERN on 8 February

(<u>http://www.linearcollider.org/newsline/archive/2008/20080228.html</u>) for the purpose of bringing the two collider development communities together. At that first meeting, five collaboration working groups were defined and a few basic ground rules were agreed upon - such as promotion of mutual participation in each other's plenary project meetings. In preparation for our second meeting, co-conveners for each of the five groups were nominated as listed below:

1) Civil Engineering and Conventional Facilities (CFS): Osborne (CERN), Vic Kuchler (FNAL)	Claude Hauviller (CERN), John
2) Beam Delivery Systems and Machine Detector Interface: Andrei Seryi (SLAC), Emmanuel Tsesmelis (CERN)	D.Schulte (CERN), Brett Parker (BNL),
3) Detectors: Dieter Schlatter (CERN), Sakue Yamada (KEK)	L.Linssen (CERN), Francois Richard (LAL),
4) Cost & Schedule: Katy Foraz (CERN), Peter Garbincius (FNAL), Tetsuo Shid	H.Braun/CERN, John Carwardine (ANL), ara (KEK), Sylvain Weisz (CERN)
5) Beam Dynamics: D.Schulte (CERN), Nick Walker (DESY)	A.Latina (FNAL), Kiyoshi Kubo (KEK),

and draft mandates for each were presented. See <u>http://indico.cern.ch/conferenceDisplay.py?confId=32263</u>. Each mandate includes intention to develop communication paths, including opening regular weekly and monthly meeting attendance. In general these meetings will be facilitated through webex.

The upcoming GDE Workshop, hosted by JINR (Dubna) in early June, provides an opportunity for working groups 1) (CFS) and 4) (Cost and Schedule) to meet face-to-face and plan activities culminating in a report on collaboration efforts to the community at the ILC08 meeting (Chicago) in November and the CLIC'08 workshop (CERN) in October. Similarly, the ILC-ECFA detector workshop, held in Warsaw in June, provides an opportunity for the Detectors working group to develop their plans. The other two working groups, 2) (Beam Delivery Systems and Machine Detector Interface) and 5) (Beam Dynamics), have well established links through, for example, the ATF-2 project at KEK, the present EU 'FP6' Eurotev & CARE programs and the future EU 'FP7' HiGrade & EUCARD programs, and will communicate plans and progress through these channels.

Each of the working groups has been asked to present an initial working program for the remainder of 2008 and to present results at the meetings late in the year. These should be ready following the June workshop meetings and, in the case of WG 1), 3) and 4), should be presented at the closing plenary. Progress toward the year's goals will be gauged at a teleconference to be held in mid-August.

Barry Barish

Jean-Pierre Delahaye

Marc Ross

May 21, 2008

6. Accelerator Systems WebEx Conference 02 May 2008, 13:00 GMT

Minutes (v1.0)

Attending: W. Bialowons, A. Brachmann, J. Carwardine, J. Clarke, P. Garbincius, K. Kubo, F. Lehner (minutes), E. Paterson, M. Ross, A. Seryi, T. Shidara, N. Solyak, J. Urakawa, N. Walker, A. Wolski, A. Yamamoto

1. General Announcements (Nick Walker)

Nick welcomed the attendees and presented the agenda of the meeting. We will have one more AS-TAGL meeting before the Dubna GDE workshop.

The next WebEx meeting is tentatively set for Friday, 30 May at 13:00 GMT.

2. Short status report by TAGLs

2.1 Electron-Source – Axel Brachmann

Axel reported on the status of the electron source. There is now a clear picture what should be available for FY '09. The available 2M\$ budget is shared between JLAB (1/3) and SLAC (2/3). Most of the money will go into FTE resources. JLAB will work on DC gun program, while SLAC will work on laser system. The possibility of having KEK involved in gun R&D work is presently being investigated. Axel will write up a short consolidated R&D work plan by mid next week.

2.2 Positron Source – Jim Clarke

Jim reported from the collaboration meeting recently held at DESY Zeuthen from 07-09 April 2008. The talks are available on the web:

https://indico.desy.de/conferenceDisplay.py?confld=586

The workshop summary slides give an overview of short and long-term goals, as well as prioritised list of R&D items. A more detailed written document will follow. The positron source integration engineer (Norbert Collomb) has started at Daresbury working on system layout and costing. It was pointed out that a connection to the CF&S group is necessary.

In response to Ewan's question on the lattice, Jim remarked that the positron source is still essentially using RDR lattice.

Nick mentioned the cost group meeting at DESY next week, which has among other items the positron source costing on its agenda. It would be helpful to have Norbert and/or Jim on the phone if detailed questions arise.

2.3 Damping Ring – Andy Wolski

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Andy gave a short status report of the CESR-TA program that will start beam operation in about one month from now. There will be a workshop at Cornell in July with emphasis on the measurement program at CESR-TA and electron cloud effects. One day of this workshop could be dedicated to general ILC DR issues.

Andy has written up the DR R&D plan with proposed WP leaders. The new plan sketches the overall deliverables, higher level milestone, structure etc. and is reduced to five WPs only with the first three focusing on test facilities. The R&D was sent to the PMs just recently and Nick will give feedback the week after next week.

2.4 RTML – Nikolay Solyak

Nikolay reported on the RTML status: the extraction line design is finished and specifications for magnets were done. First cost estimations for the extraction line are underway. The single-stage bunch compressor discussions are ongoing with work in progress. Nikolay is starting to re-organize the WP structure of RTML and first concepts exist. However, resources are difficult to identify. Nikolay will write up the new structure and the high-level goals by mid of next week. This will then serve as input for the updated ILC R&D report submitted to FALC-RG.

2.5 BDS – Andrei Seryi

Main focus of BDS is ATF2 with good progress. SLAC is contributing to ATF2 and is shipping the final doublets now. As regards the R&D development plan, ideas exist and could be sent by next week. New updates on resources from UK colleagues are now available. However, a detailed plan can not be outlined, rather a sketch with high-level goals.

Nick mentioned that GDE R&D report will be reviewed first by EC and then submitted to FALC-RG for the meeting on 14 May.

2.6 Simulation – Kiyoshi Kubo (slides available)

Kiyoshi reported that the group is having a phone conference every month. There is some progress on solving apparent discrepancies between different codes/algorithms for the Main Linac simulations. They further succeeded to implement realistic alignment models. Improvements were also reported in understanding coupler kicks in superconducting cavities. Nevertheless, since December work is proceeding slowly, mainly due to missing assignments: There are no contact persons for RTML and BDS beam dynamics.

In response to this Nikolay pointed out that he has no available people for beam dynamics/simulations so far. He is discussing this issue with Indian colleagues. Andrei mentioned that Glenn White could act as a contact person on behalf of BDS. Nick and Marc will discuss with Nikolai at the Dubna meeting.

3. Discussions on plans for Dubna GDE meeting

Ewan reported on a recent meeting with CF&S to prepare the agenda for the focus groups A&B. They slightly reorganized the program and Vic Kuchler will post a new agenda.

4. LCWS '08 plans

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The LCWS 2008 will be held in Chicago (at UIC?) on 17-21 November. Based on the experience from the last LCWS at DESY too many parallel sessions should be avoided. Thus, parallel sessions need to be consolidated to a few only. There was a discussion if RTML should get its own parallel session or not. Nick will discuss this with Nikolai. It was pointed out that joint sessions with CF&S (for example) are important. Marc mentioned that Mike Harrison is in charge of outlining the program and he needs to find a balance for necessary discussions of all different types.

5. PM reports

SCRF workshop at FNAL – Akira

Akira reported from the 5 day SCRF workshop at FNAL. There is now agreement on the compatibility concept.

FALC-RG and other meetings - Marc Ross

Executive committee will review R&D plan on May 8. FALC-RG will meet on May 14. The ILCSC meeting is scheduled at the first day in Dubna on June 3 and FALC itself will meet mid July. The core document should be about 15 pages.

ILC-EDMS - Nick

Nick reported on plan to upload lattice files and other RDR relevant information from accelerator systems into EDMS. The plan is to try and finish this undertaking by LCWS '08.

Cost Management Group - Nick

Next week a cost management group meeting will take place at DESY. The group will take a critical look at the RDR value estimate. Discussions will certainly generate questions and action item lists with request to TAGLs to follow up. The cost management group should also discuss how to set-up the costing process and stringent methodology for the TD phase and the planned 2012 value estimate update. Nick noted that a summary report of the cost management meeting will be made public.

AOB – Nick

The monthly status reports by TAGLs need to be better organized. Probably specific dates should be set by end of the month for collecting reports.

There is an Accelerator Advisory Panel (AAP) that reports to Barry, and Nick wants to engage the relevant contact people (Olivier Napoly, Katsunobu Oide) by inviting them to future AS-TAGL meetings.

Action List:

Milestones / deliverables for TD Phase I for the R&D Plan, together with restructured (consolidated) Work Package structure, should be sent to the PMs by no later than <u>Wednesday, 7 May</u>

Next Webex AS-TAGL meeting: Proposal: May 30, 2008 at 13:00 GMT

V1.0, Frank Lehner



Notes from 21st May 2008 Area Systems Monthly Meeting: CFS & Global

Attendees (via webex)

- J. Carwardine
- E. Elsen
- P.Garbincius
- J. Osborne
- M. Ross
- N. Toge
- T. Shidara
- M. Votava
- N. Walker
- A. Yamomoto

Agenda Items

- 1. PM report (Ross)
- 2. Report on CERN CLIC / ILC collaboration meeting (Osborne)
- 3. Dubna GDE meeting goals (Kuchler)
- 4. LLRF report from DESY/TTF (Carwardine)

Meeting Notes

1. PM Report (Marc Ross)

PMs are in the process of updating the TDR R&D Plan that describes the GDE R&D priorities from now until 2010 (end of TDP Phase 1). Also included are summaries of the world-wide ILC resources and institutional participation in the various technical areas. Good progress is being made and the document is scheduled for release ILC-wide at the Dubna meeting. A draft has already gone to the FALC Resources Board. Two areas are currently missing from the CFS & Global area, namely Controls and LLRF R&D priorities. LLRF will be included in the document, largely through activities associated with the planned "9mA beam studies" at FLASH that are focused on studying operation at full ILC-like beam conditions. CFS priorities continue to be associated with ILC cost reduction / cost mitigation.

The process of developing GDE-wide monthly progress reports is being simplified. The basis of the monthly Project Management Report will be the topics and material discussed at these monthly meetings. The report will comprise presentation slides and meeting notes. Technical Area Group leaders are expected to produce a single

summary slide prior to the monthly meeting that will comprise their monthly report.

The PMs are developing a plan for holding periodic project reviews. At a minimum, this will comprise a mid-TD Phase review around 2010 and reviews by the newly formed Accelerator Advisory Panel (AAP) that was announced at the Sendai GDE meeting. The general philosophy, number, and timing of reviews is still under discussion amongst the PMs.

2. Report on CLIC/ILC Collaboration for CFS Works (John Osborne)

New common CFS working groups have been formed that focus separately on CLIC and ILC. Each working group has participation from both CILC and ILC teams. Common CFS meetings are scheduled for both, starting with the Dubna GDE meeting and then followed by a CLIC meeting on 11th June at CERN.

Increased support from the CERN CES group is anticipated because their commitments on LHC are ramping down and because CERN will be receiving FP7/Higrade funding support.

There is a meeting scheduled with Tunnel Boring Manufacturer on 19th June

The CFS Group discussed developing a 'unified' site at their weekly webex meeting on May 20th. One area on ILC that is particularly relevant to CLIC is the interaction region, and there will be discussions at Dubna on a shallow-site solution for the interaction point.

Marc Ross will be meeting with the Dubna CFS and Management groups in the days leading up to the Dubna GDE meeting. Participation of GSPI engineers at the Dubna GDE meeting has been confirmed.

3. Preparations for the Dubna GDE meeting (Vic Kuchler)

The detailed agenda for the Dubna parallel and plenary sessions is close to being finalized. There is some uncertainty about the Thursday morning session on siting as to whether this is a closed or open session. If the latter, it is expected there will be broad interest and this will impact participation with the parallel sessions also scheduled to meet on Thursday morning.

The CFS Group is aiming to come out of the Dubna meeting with a plan of attack for the remainder of the 2008 calendar year.

Marc: asked Akira and japanese colleagues to carefully carefully consider several items

raised in Vic's presentation that Marc wishes to see as a centrak theme at the Dubna meeting, namely:

* Developing a plan and timeframe for exploring CFS criteria that offer the greatest potential for reducing cost

* Combining optimum siting criteria into an alternate design solution compared to the RDR baseline design.

* Determine the impact of alternate design solutions on both side-dependent and site-independent CFS costs.

4. LLRF Report from DESY/TTF (John Carwardine)

Carwardine has begun discussions with the DESY LLRF group on preparing for the 9mA beam tests at FLASH. Particular topics of interest to LLRF include RF regulation close to the gradient limits of the cavities under full beam-loading conditions, graceful exception handling such as cavity quench, and studying LLRF requirements for HLRF power overhead. Additionally, increased automation of routine LLRF operations will be explored.

Existing systems in ACC4/5/6 may not have the capacity to support additional code, for example to implement some of the exception handling.

There are some HLRF limitations that may impact being able to operate at full gradient and full beam loading, specifically RF power limits in the cavity circulators.

The FLASH LLRF systems are well instrumented both directly from the LLRF processors and separately from the Control System 'DAQ' which samples many signals synchronously at 1Msamples/sec and stores the data for ~3 weeks before being discarded. All the DAQ data is available remotely with a DESY account.

Draft: Minutes of ML-SCRF Technology Meeting (080514)

Date & Time:

13:00-14:03 GMT, May 14, 2008, using WebEx.

Participants:

H. Hayano, N. Ohuchi, T. Peterson, S. Fukuda, C. Adolphsen, E. Paterson, N. Toge, A. Yamamoto, N. Walker, J. Carwardine, W. Bialowons, J. Kerby, T. Hutt, C. Pagani, W. Funk, S. Mishra, JLab(?), T. Shidara

Agenda:

1) Status report from PM (FALC-RG and other meetings)

- SCRF meeting at Fermilab, April 21-25 Minutes prepared, and comments appreciated Work-packages should function now
- Cost management group meeting at DESY, May 5-8 Cost management issues during TDP were discussed. Traceability check of the RDR estimates is important and will be drilled down by the cost management group members. Cost reduction items like two-to-one tunnel, cooling water, and others were reviewed.
- TD-Phase R&D plan rev. 3.
 SCRF part was updated (still needs to be improved: S2, MLI)
 SCRF appendix and work-package need to be further updated
 Submitted to FALC-RG
- SCRF related Invited talks to conferences (A.Y.) EPAC-08 (June 22):"Coordinated Global R&D Effort for the ILC Linac Technology" ASC-08 (August 26):"Superconducting RF Cavity Development for the ILC"

2) Technical Design Phase R&D plan (rev. 3)

- 2-1) High-gradient R&D guideline:
 - Guideline for fabrication/process proposed (A.Y. in discussion with L.L. and H.H.); Details will be discussed next week by the work-package coordinator, Lutz.
- 2-2) S1-global preparation:
 - Cooperation in cryomodule development between INFN/KEK (C.P., N.O. assisted by K.O. & A,Y.))
- 2-3) Work-package organization update (A.Y.)
 - Modification of the WPs is approved by the GLs.
 - GLs are requested to nominate the related WP coordinators within a week or two (before Dubna GDE meeting, June 3-7).
 - Shigeki claimed the difficulty of coordinator nomination for HLRF.
 - (Further discussion made in a separate meeting with AY, SF, CA, on the next day).
 - See appendix below:

3) Meeting schedule

- WebEx Meeting: June 11, July 9
 - Functional parameters and plug-compatible conditions will be settled.
- Post TTC: Needs to negotiate with D. Proch separately.
- LCWS-08, GDE meeting, November in Chicago

Append	1x: Work packages rev	vision to be approved	
	As of Dec. 07, 2007	TD-phase R&D (updated)	Coordinator
1.1	<u>Cavity</u>		
1.1.1	Gradient	Gradient performance and	LL
	performance	specification	HH, MC
1.1.2	Fabrication		
1.1.3	Process specification		
1.1.4	Specification		
1.1.5		Industrialization and cost	LL, TS
1.2	Cavity Integration		
1.2.1	Tuner	Tuner	HH
1.2.2	Input coupler	Input coupler	SP
1.2.3	Magnetic shield	Mag. Shield and He-vessel	
1.2.4	He-vessel		
1.2.5	Integration and test	Integration, test, H.P. code	HH
1.2.6	Industrialization	Industrialization & cost	HH, TS
			,
1.3	Crvomodule		
131	<u>Standardization</u>	Standardization	СР
1.3.1	Cooling-nine config	Cold-mass engineering	NO
133	5-K shield		110
1.3.4	Quadrupole assembl	Quadrupole installation	
1.3.5	Assembly process	Assembly & eng w/ CAD work	DM
1.0.0	Engineering w/ CAD		DM
1.0.0 1.3.7	Svs Performance	System test and evaluation	NO
138	Transportation	Transportation	NO
1.0.0	Industrialization	Industrialization & cost	NO RS (TS)
1.0.0	mustrianzation		10,10 (15)
1 /	Cryogenics		
1.4	Hoat loads	Heatlands	NO
1.4.1	Cryonlant design	Cryonlant design & surface impact	тр
1.4.2	Roliability ropair	Tunnol arwaganiag system & integ	11
1.4.0	Venting proce Limit	Vont proce Limit & woodel/piping	TD
1.4.4	venting press. Limit	standard	11
1.4.5	Surface impact	stanuaru	
1/4.0	Hazard		
1.4.0	Cryphox design		
1.4.1	Liquid control		
1.4.0	Ontim of anyogenica		
1.4.9	2K host syshamor		
1.4.10	2n neat exchanger		
1.4.11	Standard (H.P. code)		ТD
1.4.12	E+/- cryogenics	E+/- source cryogenics	117
1.4.13	DK cryogenics	DK cryogenics	
1.4.14	BDS cryogenics	BDS cryogenics	
1.4.15	KTML cryogenics	KTML cryogenics	
1.4.16	MLI vacuum	MLI vacuum	
1.4.17	RTML vacuum	RTML vacuum	
1.4.18		Cost	TP, TS

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Appendix	WOLK	packages	revision	ιo	be approved

	1		
1.5	HLRF		
1.5.1	Modulator	Modulator	CA
1.5.2	Klystron	Klystron	
1.5.3	RF power dist. Sys.	RF power dist. Sys.	SF
1.5.4	HV charger sys.	HV charger sys.	
1.5.5	Interlock & CNTL	Interlock & CNTL	(SM)
1.5.6		Industrialization & cost	SF, TS
1.6	MLI		
1.6.1	Quadrupole design	Quadrupole specification	CA
1.6.2	Quadrupole proto.	Quadrupole prototype develop.	BK
1.6.3	Latt. Opt & emit.	Linac beam dynamics	KK
1.6.4	Initial alignment		
1.6.5	Energy errors		
1.6.6	Static tuning		
1.6.7	Dynamic tuning	Wake field and cavity topics	ZL
1.6.8	Topics		
1.6.9		Cost	CA, TS

Monthly Report (1-30april08) for

monthly_report_30april08.doc Project Management Office – Cost and Scheduling (C&S) and International Costing Group (ICG) reported by Peter H. Garbincius - rev. none

I presented a report on the status and quality of the cost estimate for the Positron Source by webex to the participants at the Positron Source Meeting in DESY-Zeuthen. It can be found under Monday, 11 AM http://ilcagenda.linearcollider.org/conferenceOtherViews.py?view=standard&confId=2639 at

At meetings between Barry, Marc, Nick, Akira, and John Carwardine, I worked to define a somewhat down-scaled scope of work for assistance from the Triad Project Management consulting firm, and restarted the contract through approval and procurement. The immediate task will be to translate and expand the EXCEL spreadsheet based estimate into a more flexible and larger scope database.

I gave a presentation and discussion on "Why the ILC looks the way it does" to 8th grade students (~13 years old) at the Rotolo Middle School in Batavia. I was impressed with the young students' questions and the apparent amount of homework that they had done.

I participated in the EDMS Boot Camp. I was able to post non-confidential files on the Project Management group area. However, there are still organization and especially confidentiality procedures that need to be set-up to allow the partial overlapping of accessibility to estimate files, e.g. all parts of CF&S estimate must be accessible to CF&S and PMO, but only those parts pertaining to ML can/must be accessible to the ML group. It is not apparent how this will/should be set up.

I attended the SCRF meeting at Fermilab.

In addition, I spent most of my time this month preparing for the Cost Management Group meeting in DESY in early May. I will discuss the content of my presentations and discussions in next month's edition.

To do over the next month(s):

Define the scope of work for Triad and get them started Complete documenting RDR cost estimate as far as possible. Continue to upgrade the cost estimate matrix and cost study "driver page" to be more inclusive. Start work with the Cost Management Group – who should take the leadership role? Establish working relationships with the CLIC cost estimating team and get their input and suggestions on the following item. Decide what parametric aspects are needed for the cost estimate and how to implement them in a database format. Get the Magnetic Field, Current, and Voltage information for all magnets from the Magnet & PS Technical group in order to get a parametric cost estimate relationship between these parameters, magnet type (dipole, quadrupole, sextupole, trim), length, and aperture. John Tompkins promised these parameters by the end of March. John refused to cooperate - I asked Cherrill Spenser instead After determining the appropriate format, start porting the estimate files from my

personal web-page to EDMS in a confidential-secure manner. This was done only to the

Project Management group area in EDMS for non-cost-confidential files.

Finalize contracts for external hosting of Primavera & sign contract for project

management consulting – defer that for a while

Define and start implementing Project Management tools, procedures, and training – also defer With the other Cost Engineers, complete the Business Model for ILC



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2008/5/2

To: GDE PMs
From: Nobu Toge
Subject: Monthly Activity Report – Engineering Management (February/March/April 2008)

The following activities have been performed or ongoing in the period of February/March/April, 2008

1. **EDMS Lecture Course at KEK:** Lars Hagge visited KEK on February 28-29, prior to Sendai GDE meeting, and gave a series of introductory lectures on EDMS. Approximately 20 people form KEK, in the area of both ATF and SCRF participated. Most participants had no previous exposure to EDMS except a few, and while feeling that this was an excellent start, most also felt that they should receive another hands-on course. Lecture materials are available at http://ilc.kek.jp/EDMS/.

2. EDMS discussion at Sendai GDE meeting and ongoing follow-up activities: In the presentation of the Sendai GDE meeting in March, Toge stressed the need for taking specific actions in the area of: soliciting inputs for the EDMS team membership list, creating team workspace structure, and starting uploading existing documents. See http://ilcagenda.linearcollider.org/contributionDisplay.py?contribId=38&sessionId=53&confId=2432. At a follow-up discussion on the last day of Sendai meeting, the GDE PMs gave a go-ahead instruction to Toge, and the following has taken place since then.

- Membership has been identified for the following EDMS teams in late March early April: Cavity preparation, Cavity production, Cryomodules, Cryogenics, ML integration, Conventional facilities and siting, Controls, Electron source, Positron source, Damping rings, Beam delivery system, Ring-to-main-linacs, Cost management, and Simulation. The team workspaces have been created for them. See <u>http://lcdev.kek.jp/EDMS/</u> for part of related communications.
- A series of "boot-camp" session on EDMS has been held at FNAL on April 18 through 22. Silke Eucker of DESY gave the course lectures. Approximately 20 members from GDE participated, and some started uploading documents to the production system area of EDMS.
- 3. **Required follow-up actions:** Following is a non-exhaustive list of high-priority items for subsequent actions to take:
 - EDMS team leaders should consult the experts at DESY on their team work-space structure, who gave them some early remarks, and seek advice for improvement.
 - EDMS teams who have not yet had opportunities to do hands-on exercises should catch up.
 - Implementation plans of access protection (related to NDA), in particular those associated with cost-related area, need to be sorted out.
 - Implementation plans of configuration management need to be sorted out.

END