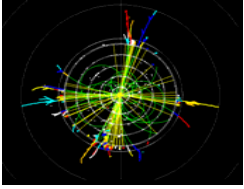


# Recent Developments on Global Detector Coordination



# ILC Research Organization

- Last fall, ILCSC recruited Sakue Yamada to serve as Research Director
- RD charge written by ILCSC and accepted by SY
- RD has begun to develop organizational structure and process



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## CHARGE

The RD will be responsible for the development of the experimental program of the ILC. In particular, the RD will be responsible for

1. devising the procedures that will result in two contrasting and complementary detector designs proposed by groups that are capable of completing detector engineering design reports (EDRs),
2. helping to secure the resources which are required by interacting with lab directors, funding agencies, and universities,
3. endorsing major technical decisions by the collaborations,
4. guiding the global detector R&D activities, as long as such management is required,
5. promoting the ILC project together with ILCSC and GDE.

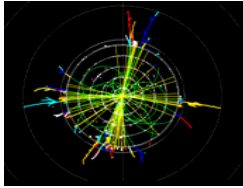
In order to perform these tasks, the RD will

1. form a management structure under him/her to execute these tasks,
2. appoint a detector advisory group, the IDAG (International Detector Advisory Group), with the approval of the membership by the ILCSC.

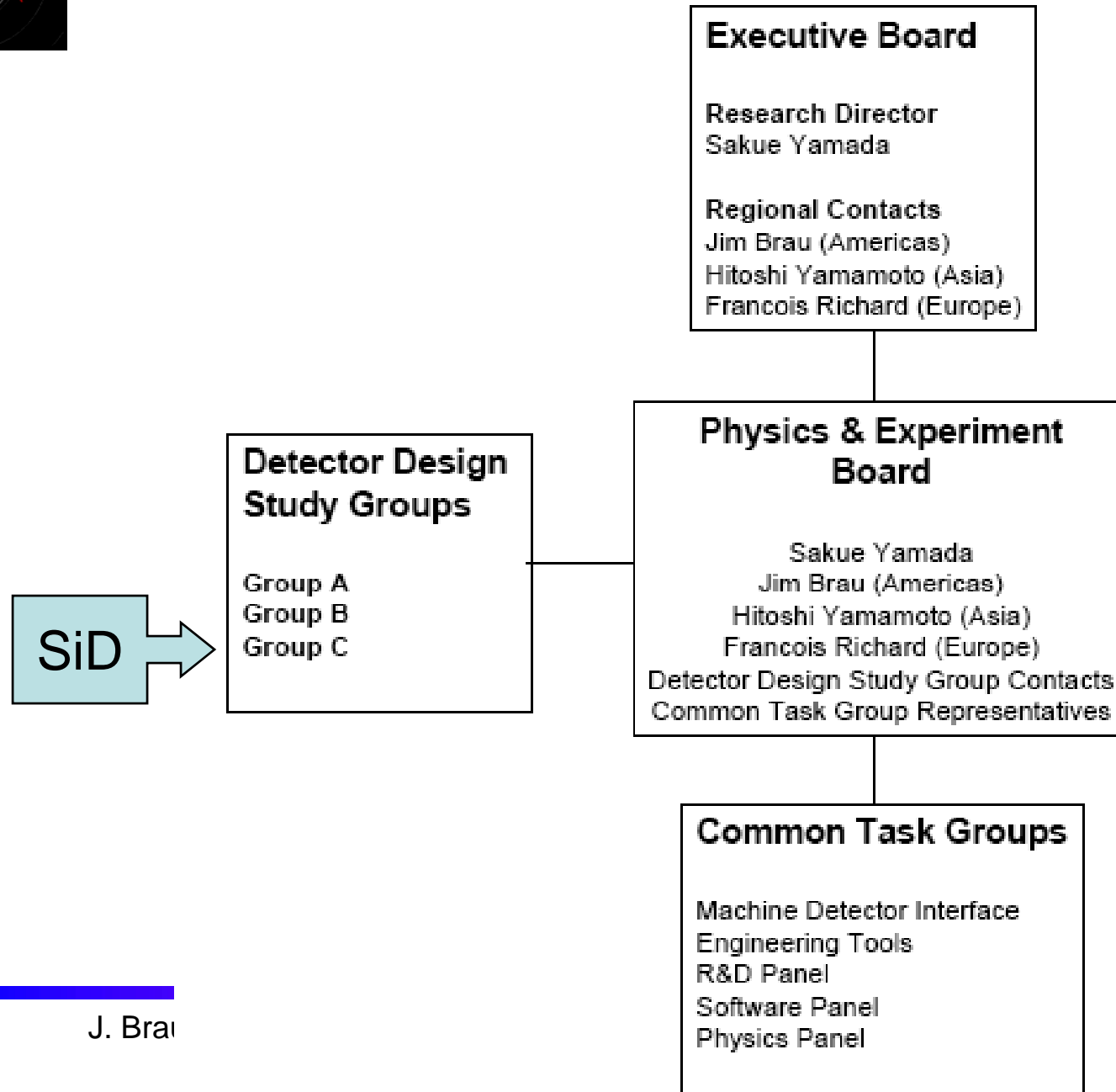
The IDAG will

1. advise the Research Director on ILC experimental program issues
2. make recommendations to the Research Director on the choice of two detectors for the engineering design effort based on detector Letters of Intent. The Research Director will present these recommendations to the ILCSC for approval.

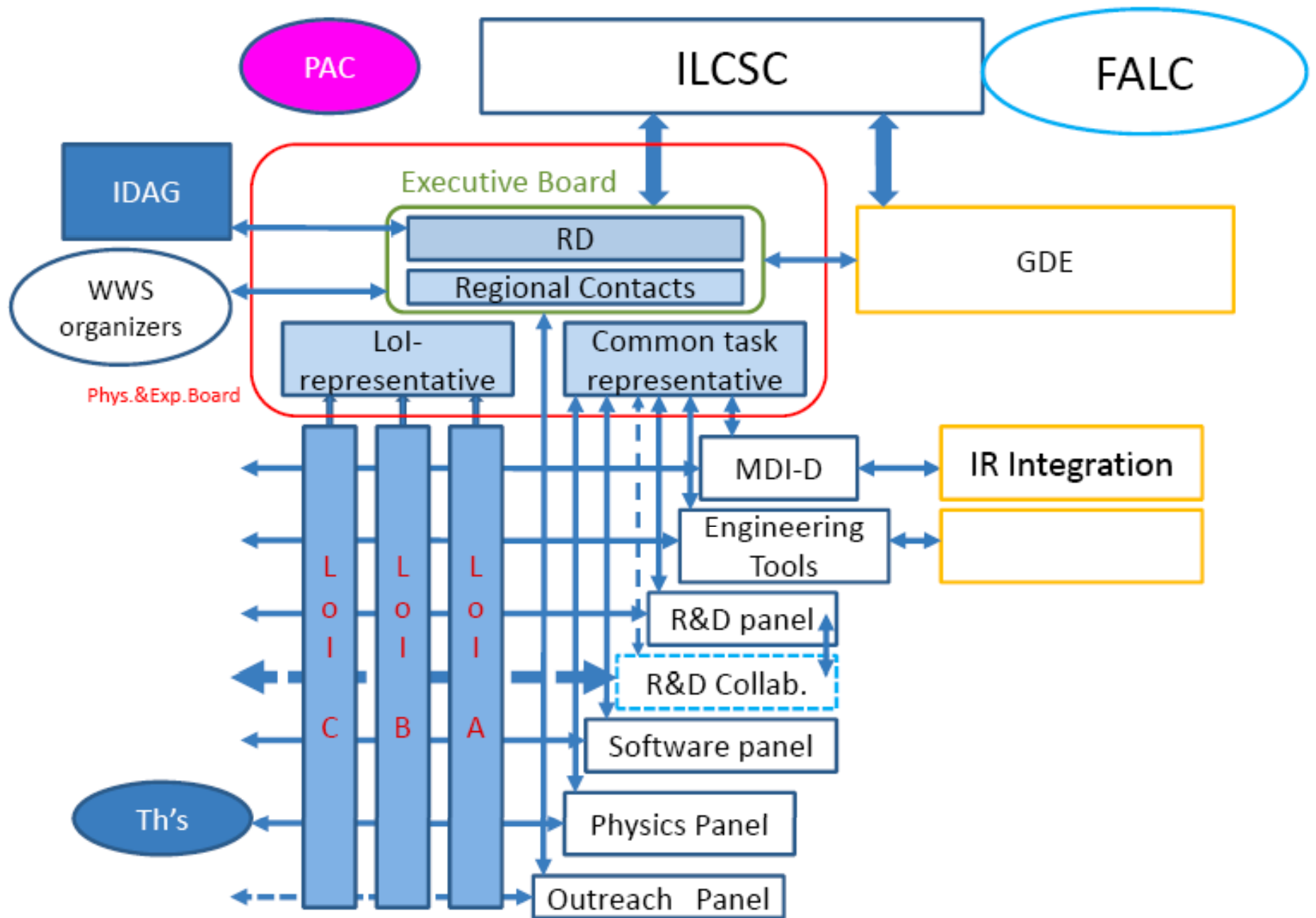
<http://www.fnal.gov/directorate/icfa/Charge%20for%20the%20ILC%20Research%20Director.pdf>

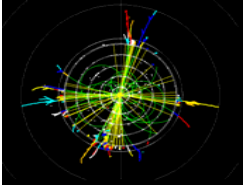


# ILC Research Directorate Organisation

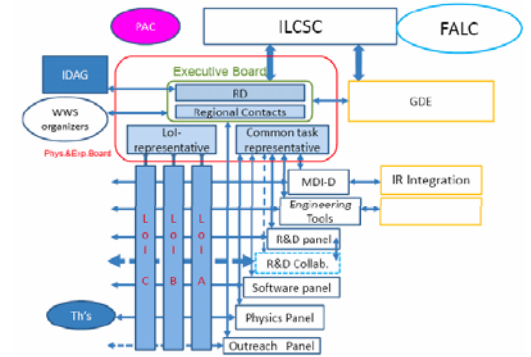


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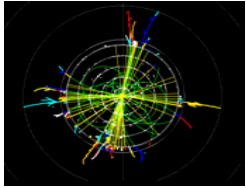
# RD's Management Structure



- It must have a good **communication** link both to the physicist community of the world and to GDE
- It should also facilitate smooth **collaboration** among LOI groups for detector or software development
- The central part is **Executive Board** consisting of RD and three regional contacts (the co-chairs)
- After identifying LOI groups several **common task** groups will be formed, where all LOI groups will join to work together
- The representatives of LOI groups and the chairs of common tasks will form **Physics and Experiment Board**

# New Timeline

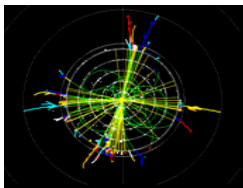
- After the budget cut in UK and US, the GDE developed a new stretched out timeline.
- After discussion, the detector community prepares now to move forward in synchronization with GDE's new timeline.
  - Technical designs by 2012
- Will agency support enable this?
- Note - work on common aspects of detectors for CLIC



# Letters of Intent for Detector Technical Design Study - 2009

- LOI includes
  - description of detector
  - identify critical R&D areas
  - list of participants
  - explanation of resources
  - simulated demonstration of physics performance (benchmarks)
  - plan for completion of technical design
- LOI leads to validation of performance by IDAG
- machine detector interface efforts intensified
- IDAG reviews LOIs, with aim to validate detector designs for advanced development  
(this is explicitly not a choice for the collider, but for the Detector Design Phase)





# IDAG

ILCSC has approved RD Yamada's nominations of 16 members for the International Detector Advisory Group (IDAG)

- members based on input from each of the regional steering groups
- include detector and experimental specialists, phenomenologists, and accelerator experts
- majority from outside ILC community

IDAG membership is complete

- some met for informal discussion at TILC08 in Sendai
- plan to have first formal meeting at Warsaw ECFA Workshop -June



# International Detector Advisory Group

IDAG members were named last December and were approved by ILCSC.

## ***Experiment & Detector***

Michael Danilov	ITEP
<u>Michel Davier</u> (Chair)	Orsay
Paul Grannis	Stony Brook
Dan Green	FNAL
Dean Karlen	Victoria
Sun-Kee Kim	SNU
Tomio Kobayashi	Tokyo
Weiguo Li	IHEP
Richard Nickerson	Oxford
Sandro Palestini	CERN

## ***Phenomenology***

Abdelhak Djouadi	Orsay
Rohini Godbole	IIS
JoAnne Hewett	SLAC

## ***Accelerator***

Tom Himel	SLAC
Nobukazu Toge	KEK
Eckhard Elsen	DESY

Half of the experimentalist are from outside the ILC community

# Validation of LOIs, rather than Selection

In order to make clearer that the aim of LOI process is for studying technical design,

RD decided NOT to select two

but to ask the IDAG to validate LOIs (i.e. not limited to 2)

*Aim for emphasis on cooperation rather than competition among the LOI groups, particularly in working the common tasks*

If too many detector designs hinder detailed studies of MDI, some reduction may be required based on physics performance and/or LOI group's capability to conduct the study

# Proposed Detector Plan

- Letters of Intent
  - due end of March, 2009*
  - Leads to validation of performance by IDAG
  - Machine-Detector Interface efforts intensified
- IDAG reviews LOIs, with aim to validate
- **Detector Design in 2 phases**
  - now- 2010, Detector Design phase I ---- GDE's TDP-I
  - thru 2012, Detector Design Phase II ---- GDE's TDP-II

# Detector design phase I

## -- through 2010

- Focus R&D on prioritized areas and critical elements
- Complete validated detector specification and initiate technical design work
- Update physics performance
- Detailed studies of MDI  
→Phase I of MDI design

GDE-TDP- I

- Prioritized R&D for risk reduction and for final focus
- MDI

ILCSC asks for a more concrete list  
Consult IDAG on this

For example - Interim Report ? - ICHEP 2010 in Paris?

# Issues to study

- Advance detector R&Ds  
e.g. Vertex sensors which are developing fast
- Develop MDI issues  
Final focus, shielding  
Infrastructure: cooling, crane, installation of big items
- Study Push-Pull mechanism and alignment  
Position reproducibility  
How can we alignment the detector position after moving ?  
And how quickly and accurately?
- Investigate causes of performance deterioration  
dead material(cables, support),  
overlapping or connection of different elements,  
effect of malfunctioning elements

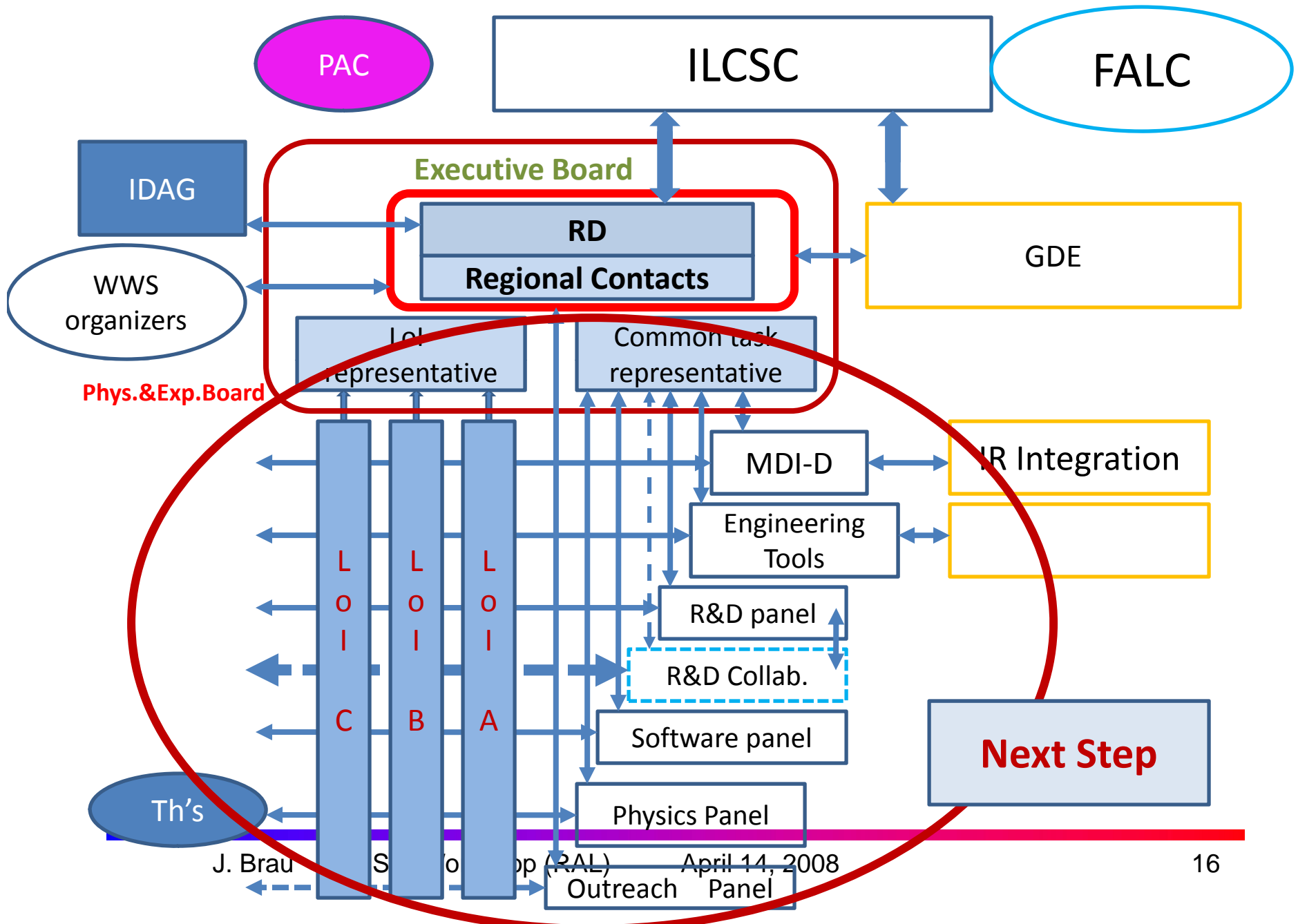
## Detector Design Phase II -- through 2012

React to LHC results  
Final confirmation of physics performance  
Complete necessary R&D  
Complete tech. design for ILC proposal  
    Complete MDI technical design  
    Complete reliable cost role up  
  
Prepare for financial plan

GDE-TDP- II

- Complete technical design and R&D needed for project proposal
- Documented design
- Complete reliable cost role up
- Project plan developed

Jan.09,2008



J. Brau

S

o

p (RAL)

April 14, 2008

16



# Formally identify LOI groups

- **Called for Expressions of Interest**  
in order to identify who will prepare LOI  
and to organize common task groups

*One particularly important task among the common tasks is to work on MDI.*

**EOIs were due March 31, 2008**

**and three (3) groups submitted EOIs**

# Common Tasks

- All LOI groups work together on important issues
- The number and details of tasks may vary in time from discussions with the community
- Actions have been taken by WWS or in the ILC community for many topics and for many years.
  - reorganized or collaborate under new RD organization

# Common task groups

**MDI group:** So far studied by WWS-MDI group

It communicates with the accelerator team (GDE's BDS) on  
final focus, radiation shield, beam dump,  
Push-pull mechanism, infrastructure

**Engineering tools:** To set up common tools for designing between Acc. & Det.

**Detector R&D Panel:** Seek possibility to cooperate in Det. R&D.

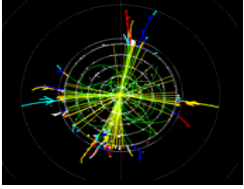
Detector Collaborations will be loosely linked to this organization through  
the R&D Panel. Detector Collaborations keep independence.

**Software panel:** Common works on Software

benchmarks of detector performance, event simulation, DAQ,  
Reconstruction, data reduction, data storage, data distribution

**Physics:** Prepare for physics related issues

physics benchmark, study energy choice,  
Interaction with other colliders/observations



# Future Meetings

- Warsaw - ECFA LC Workshop
  - June 9-12
  - First meeting of the IDAG
    - Plenary presentations by LOI groups
    - Closed session discussion with LOI groups
- LCWS08 - U. Illinois at Chicago
  - November 16-20

# Conclusions

Global detector community, led by Research Director Sakue Yamada, plans

1. to move forward with a new plan stretched to 2012 and synchronized with GDE
2. to continue the detector design process with LOIs next year

- Due date for Lols is end March 2009
  - Three groups responded to call for Eol
- Instead of selection of 2 LOIs, validation of Lols will be made.
- Next - RD will organize common task groups