



Muon Accelerator Program Review Highlights



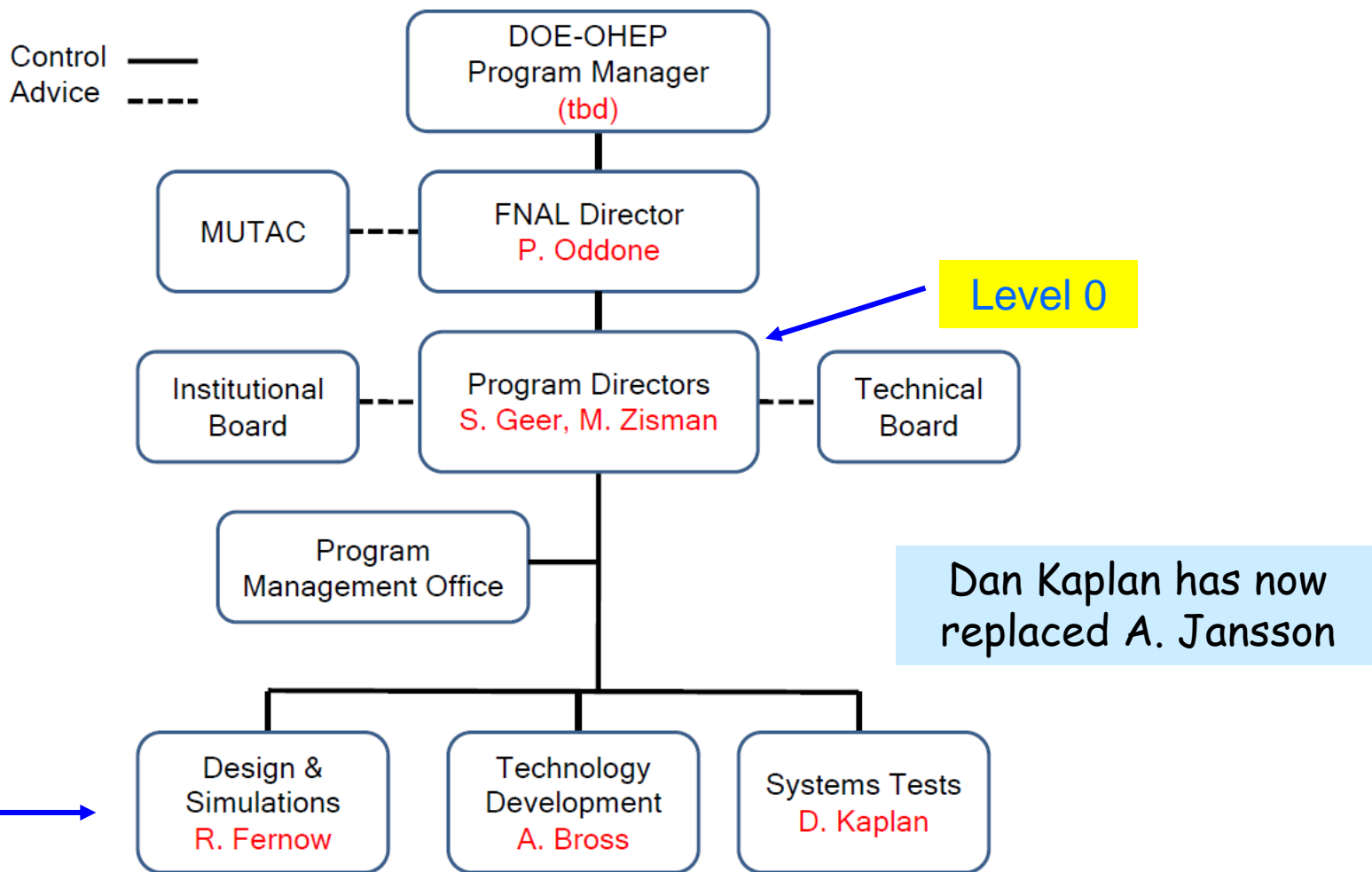
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MICE Collaboration Meeting 28—Sofia
October 4, 2010

- At urging of DOE, Fermilab has set up joint organization based on **NFMCC** and **MCTF**
 - both organizations brought under common leadership
 - Program Director will report to Fermilab Director
- New organization named Muon Accelerator Program (**MAP**)
- *Interim* co-directors have been designated by Fermilab
 - **Geer** and **Zisman**
- Charged with preparing revised proposal for submission to DOE and organizing its subsequent review
 - review held at Fermilab August 24-26, 2010
 - see <http://indico.fnal.gov/conferenceDisplay.py?confId=3474>
 - contains links to talks, supporting documents, and close-out slides

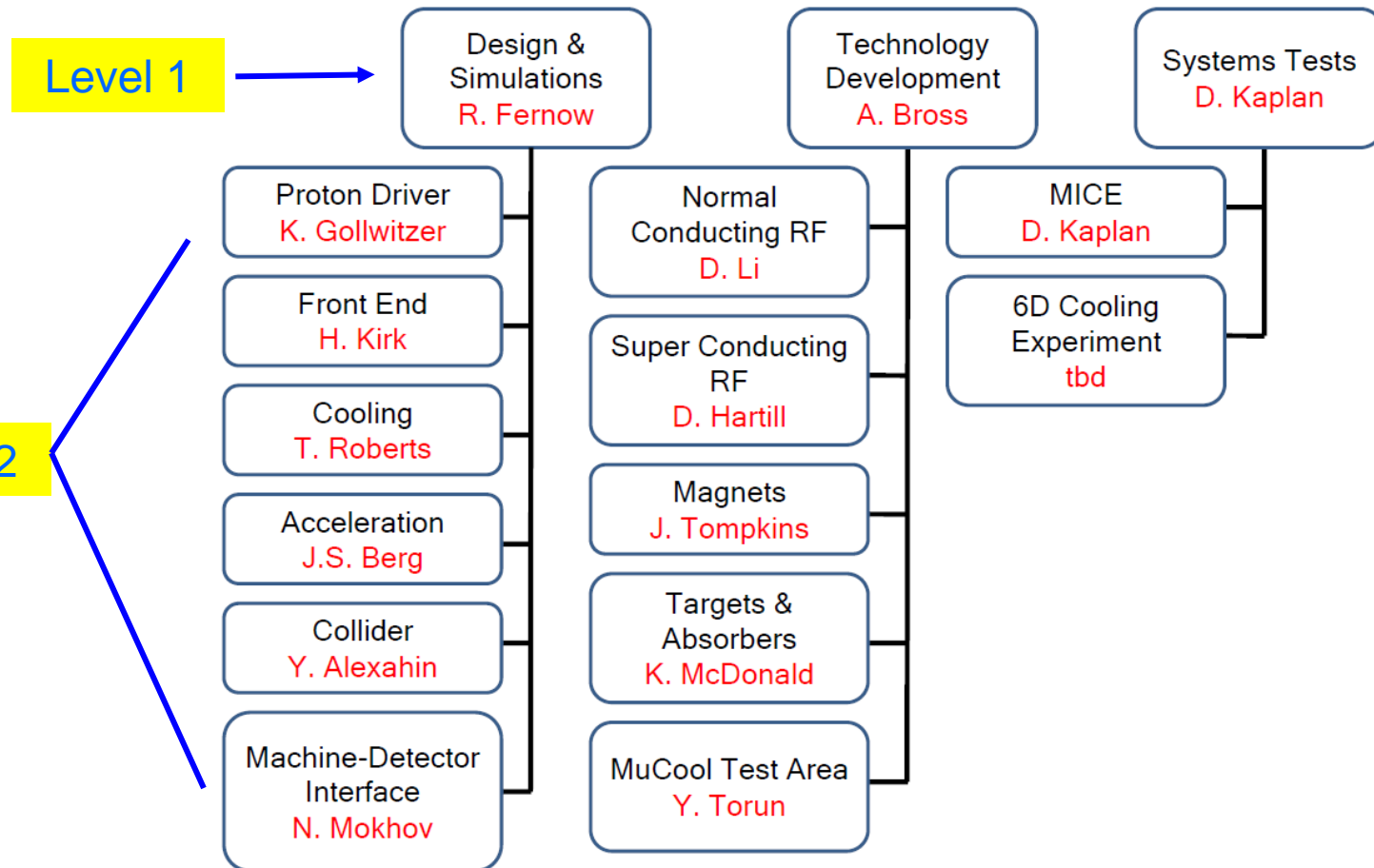
- New organizational structure requested by DOE
 - more project-like
 - Program Director makes final decisions
 - subject to oversight of Fermilab Director
 - based on review recommendations, oversight structure simplified
 - MCOG will be eliminated
 - ♦ MUTAC will now report to Fermilab Director
- MAP organization set up and populated
 - not yet clear whether it will be funded as "MAP" in FY11
 - alternative is to continue funding as NFMCC+MCTF this year
 - depending on length of continuing resolution, may be no choice but this
 - Fermilab Director and MAP Co-Directors all favor managing funds as MAP from now on
 - basically being done that way already

- “Simplified” **MAP** organization and oversight



Second-Level Organization

- In consultation with Program Co-Directors, L1 leaders have created L2 organization



- **Membership includes**
 - **ANL: Harry Weerts**
 - **BNL: Ilan Ben-Zvi**
 - **FNAL: Vladimir Shiltsev**
 - **Jlab: Andrew Hutton**
 - **LBNL: Steve Gourlay**
 - **ORNL: Van Graves**
 - **SLAC: Tor Raubenheimer**
 - **Cornell: Don Hartill (Chair)**
 - **IIT: Dan Kaplan (Secretary)**
 - **Princeton: Kirk McDonald**
 - **UCB: Jonathan Wurtele**
 - **UCLA: David Cline**
 - **UCR: Gail Hanson**
 - **U-Miss: Don Summers**

Budget Request

- Based on guidance, built nominal plan for ~\$15M per year
 - also proposed “augmented” plan at peak of ~\$19M
 - would permit completion of tasks one year earlier

- Requested profiles in FY10 \$M are:

	Y1	Y2	Y3	Y4	Y5	Y6	Y7
Nominal	10.3	15.4	15.5	15.5	15.5	15.5	14.9
Augmented	10.3	15.4	17.9	19.2	19.5	19.4	—

NOTE: Present guidance is that FY11 (=Y2) will again be ~\$10M, not \$15M

- Defined main “deliverables”
 - both for nominal and augmented scenarios

Deliverable	MAP deliverables.	
	Nominal schedule	Augmented schedule
MC DFS		
Interim	FY14	—
Final + cost range	FY16	FY15
MICE hardware completion	FY13	
RF studies (down-select)	FY12	
IDS-NF RDR	FY14	
6D cooling definition	FY12	
6D cooling section component bench test	FY16	FY15
6D demonstration proposal	FY16	FY15

- DOE staff
 - Kovar, Procaro, Len, Strauss, Crawford
- NSF staff
 - Whitmore
- Technical consultants
 - accelerator systems
 - Peggs, Markiewicz
 - accelerator physics
 - Cai, Cary
 - RF
 - Adolphsen, Jensen
 - magnets
 - McIntyre, Zeller
 - management
 - Womersley

- Reviewers judged that **program was worth funding**
- *Many* recommendations (and even more comments) made
 - see <http://indico.fnal.gov/getFile.py/access?resId=0&materialId=16&confId=3474>
 - major ones:
 - prepare **MAP** Mission Statement ✓
 - prepare list and schedule of all technical down-selections
 - continue RF R&D
 - take advantage of ongoing worldwide effort in high-gradient RF R&D
 - prepare revised [RF] R&D plan by November 30
 - revise [beam physics] R&D to better streamline and prioritize tasks
 - articulate plan to deliver on [**MICE** magnet] commitment by Sept. 30
 - focus [magnet] R&D on those elements of technology particular to MAP
 - establish intermediate [magnet] technical milestones pertinent to strategic down-selects
 - streamline organization chart ✓
 - submit revised proposal by November 30



Mission Statement



- Mission statement approved by Fermilab Director

“The mission of the Muon Accelerator Program (MAP) is to develop and demonstrate the concepts and critical technologies required to produce, capture, condition, accelerate, and store intense beams of muons for Muon Colliders and Neutrino Factories. The goal of MAP is to deliver results that will permit the high-energy physics community to make an informed choice of the optimal path to a high-energy lepton collider and/or a next-generation neutrino beam facility. Coordination with the parallel Muon Collider Physics and Detector Study and with the International Design Study of a Neutrino Factory will ensure MAP responsiveness to physics requirements.”

- Reviewers emphasized importance of *timely* completion of **MICE**
 - spectrometer solenoid delays were certainly noticed
 - remedial action plan will be discussed during CM28
 - this is already a bit late compared with September 30 deadline
 - concern also expressed over coupling coils
 - technical more than schedule in this case

Next Steps

- We are following up on recommendation to prepare revised R&D plan by November 30
 - given today's funding realities, likely boundary condition is that this is a "zero-sum" game
- Plans for FY11 (starting this week) based on "flat-flat" budget
 - we hope to do better than this, but may not get all the way to \$15M

- Review recommended approval of **MAP**
- Plan being adjusted in light of reviewers recommendations
- Importance of **MICE** strongly emphasized
 - excellent presentations of status by **Dan Kaplan, Linda Coney and Steve Virostek!**
- Budget difficulties remain