



# Program Management

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# Outline



- Introduction
- Organization
  - Organizing principles
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  - Ingredients
- Responsibilities
- Oversight
- Approach to down-selection
- Summary



# Introduction



- DOE requested Fermilab to set up merged NFMCC+MCTF organization in October 2009
    - MAP is the result of that process
  - Goal is to execute multi-year R&D program to
    - complete Design Feasibility Report for MC
    - participate in IDS-NF effort toward NF RDR
    - carry out supporting technology R&D
    - participate in system tests of 4D and 6D cooling
      - MICE and 6D “bench test” (no beam)
  - Written Program Management Plan available for sign-off by appropriate managers
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# Organizing Principles



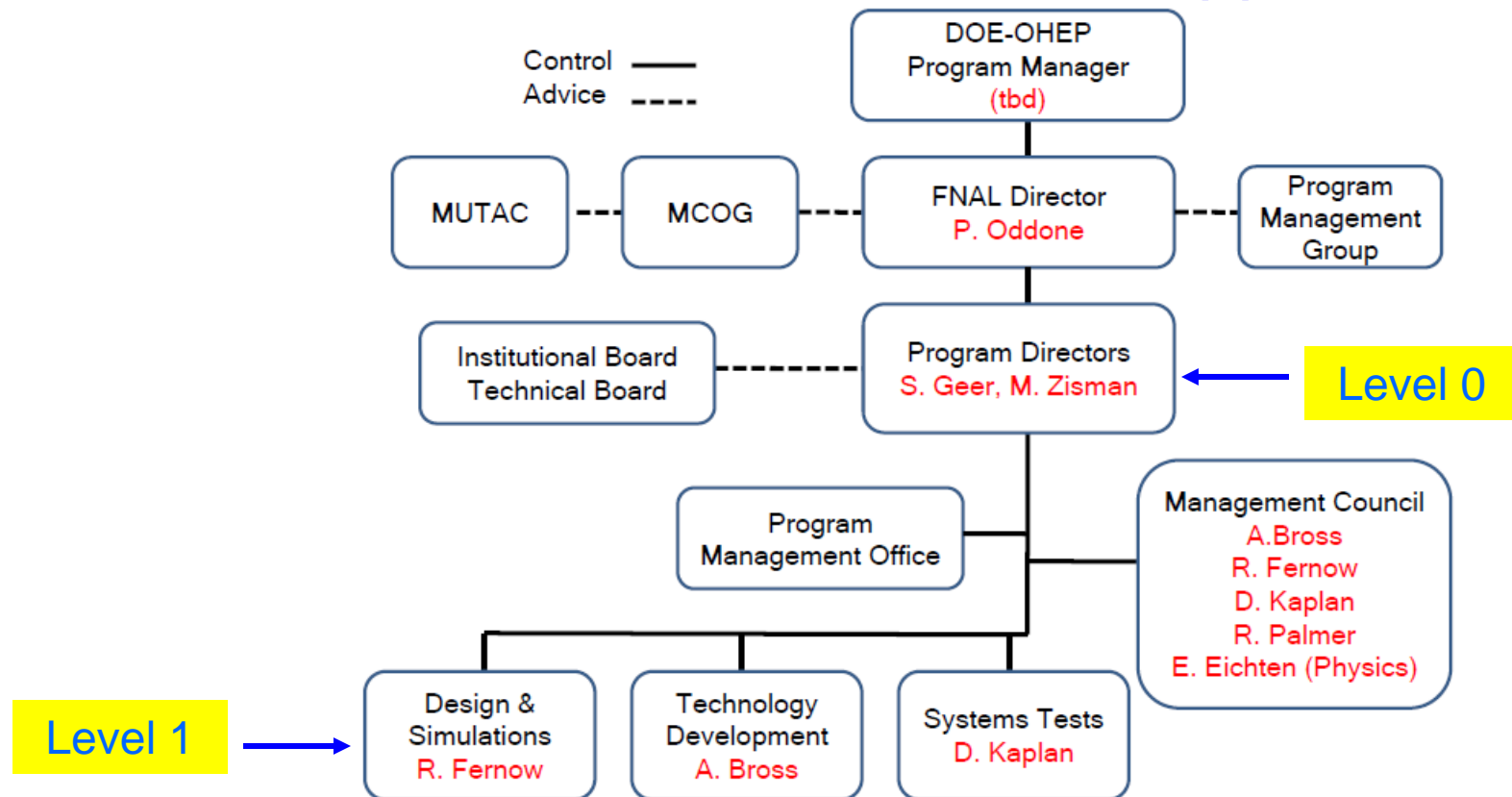
- Create organization that delivers
  - a coherent, national R&D program
  - a multi-institutional program (Labs, Universities)
  - a streamlined structure with clear reporting lines
- Key principles
  - Fermilab provides overall management
  - collaborative effort integrating NFMCC and MCTF
  - maintains existing NFMCC commitments
  - led by Program Director who controls funding
  - adequate oversight (MCOG, MUTAC, PMG, DOE)
    - MAP Program Manager at DOE will be selected



# MAP Upper Level Organization



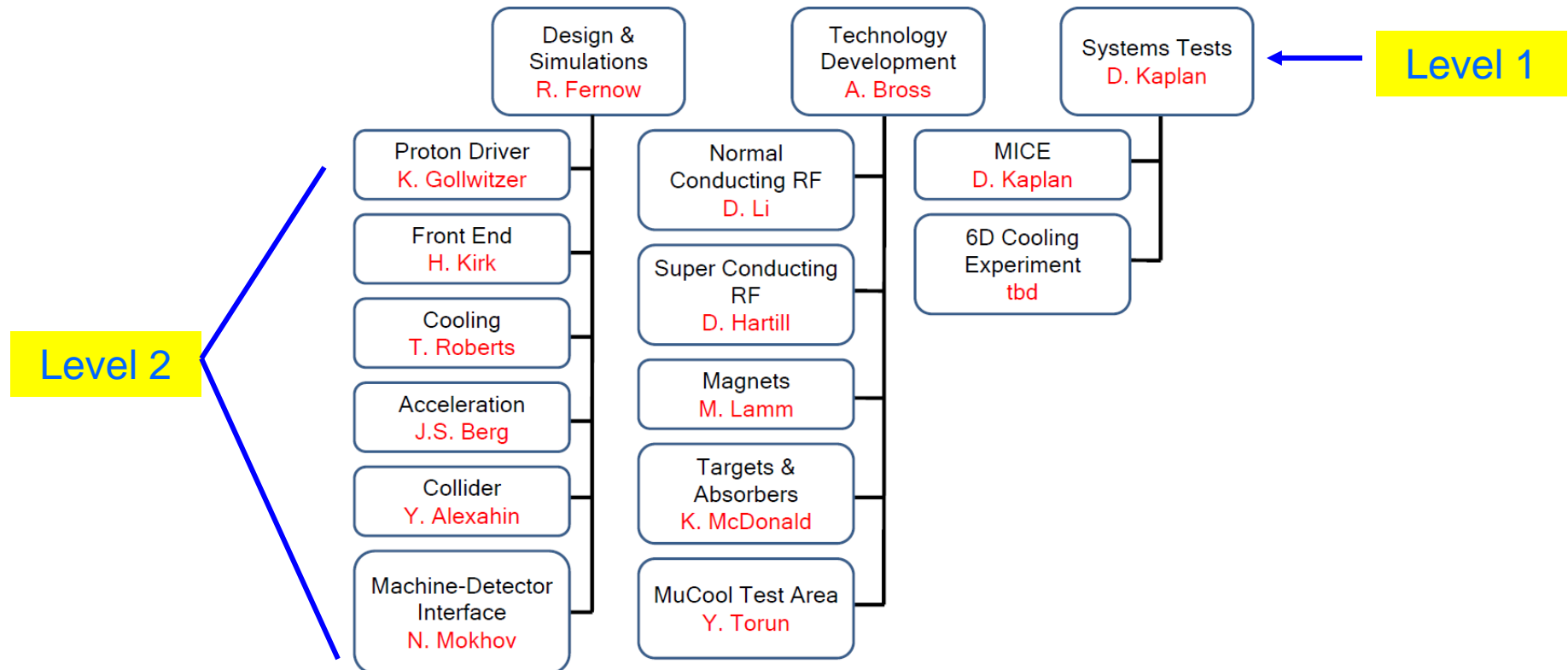
- Organization in place and functioning
  - Level 0 and Level 1 names interim appointments





# MAP Level 2 Organization

- Level 2 organization in place and functioning
  - L2 leaders chosen by L1 leaders
    - approved by Program Co-Directors





# Organization Ingredients



- Co-Directors (L0) appointed by Pier Oddone
- Level 1 organization comprises three groups:
  - design & simulations (R. Fernow, BNL)
  - technology development (A. Bross, FNAL)
  - system tests (D. Kaplan, IIT)
- Institutional Board (IB)
  - chaired by D. Hartill (Cornell)
- Technical Board
  - chaired by Program Co-Directors
- Management Council
  - chaired by Program Co-Directors



# Organizational Responsibilities (1)



- Program Director
  - responsible for technical, policy, funding decisions
    - controls allocation of funds to participating institutions
  - maintains and updates multi-year R&D plan
    - defines goals and objectives, required resources, and program responsibilities
    - leads organization to carry it out
    - makes final decisions on technology choices (“down-selection”)
  - provides periodic reports to Fermilab Director and OHEP
  - serves as MAP “Complaint Department” 😊





# Organizational Responsibilities (2)



- Level 1 leaders
  - coordinate tasks in each technical area
    - D&S produces work for MC-DFS and IDS-NF RDR
      - includes MDI responsibility and support for 6D cooling test
    - TD demonstrates feasibility and cost range of components for MC and NF designs
    - ST coordinates system tests to demonstrate feasibility and cost of MC and NF cooling systems
  - develop organization to carry out tasks
    - try to reflect MAP population in making assignments
  - develop and maintain plan to carry out tasks
    - including milestones and deliverables
  - participate in preparations for MAP reviews



# Organizational Responsibilities (3)



- Technical Board
  - comprises Level 1 leaders plus other members designated by Program Director
    - interim TB taken over from existing NFMCC TB
  - assists Program Director in assessing technical plans and budgets
    - reviews and assesses proposals from new institutions requesting MAP funding
      - such requests will compete for available “reserve” funds
    - gives advice on
      - required support, choice of technical options, changes of direction of R&D efforts
  - meets as requested by Program Director



# Organizational Responsibilities (4)



- Management Council
  - comprises Level 1 leaders + other MAP members designated by Program Director
    - includes representative from Physics and Detector study
  - advises Program Director on operational issues
    - progress toward milestones, priorities and resource allocations, issues that cross Level 1 boundaries, weekly meeting agendas, items for attention of TB or IB
  - maintains parameter sets and advises on need for updates



# Organizational Responsibilities (5)



- Program Management Office
  - comprises Fermilab staff to provide support for MAP administrative and organizational tasks
    - budget monitoring and planning (across institutions)
    - web site development
    - development and maintenance of documents database
  - collects and maintains MAP financial records from all participating institutions
    - also progress toward milestones
  - helps prepare progress reports as required by Fermilab Director and/or DOE-OHEP



# Organizational Responsibilities (6)



- Institutional Board
  - comprises members designated by each institution as policy representative
    - chair chosen by IB membership, in consultation with Program Director
  - members serve (individually) as institutional contact
    - responsible for negotiating milestones and deliverables
  - advises Map Director on policy matters
    - defines MAP membership guidelines and presentation and publication policies; raises policy matters to MAP Director; maintains publication information; considers outreach aspects



# Oversight (1)



- Oversight comes from
  - Fermilab Director
  - MCOG, with assistance from MUTAC
  - Program Management Group (PMG)
  - DOE Program Manager
- Muon Collider Oversight Group (MCOG)
  - members at directorate level (S. Vigdor)
    - expanded membership cf. NFMCC version
  - advised by MUTAC (international)
    - currently chaired by D. Rubin (Cornell)
    - meets annually to assess program



## Oversight (2)



- Program Management Group
  - comprises resource managers from primary MAP institutions
    - will resolve resource issues as they arise
      - resource-loaded schedule and WBS are primary tools to assess ongoing needs and impact of program changes
    - fosters inter-institutional communication
  - monitors progress of program
    - definition of goals and strategic approach (evolutionary)
    - progress against plan (technical and resource utilization)
      - resource and schedule implications of configuration change actions
    - major procurements (ensure timely execution)
    - cost accounting



# MAP Board Memberships



## Institutional Board

**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

## Technical Board

**A. Bross, NFMCC Co-Spokesperson**  
**R. Fernow**  
**S. Geer, Co-Chair**  
**M. Green**  
**D. Hartill**  
**D. Kaplan**  
**H. Kirk, NFMCC Co-Spokesperson**  
**K. McDonald**  
**J. Norem**  
**R. Rimmer**  
**M. Zisman, Co-Chair**





# Oversight Board Memberships



## MCOG

**S. Vigdor**, BNL

**S. Holmes\***, Fermilab

**J. Siegrist**, LBNL

**D. MacFarlane**, SLAC

**tbd**, University member

**\*to be replaced by**

**S. Henderson**

## MUTAC

**John Byrd**, LBNL

**David Finley**, FNAL

**Vladimir Litvinenko**, BNL

**Peter McIntosh**, Daresbury Lab

**Lia Merminga**, TRIUMF

**David Rubin (Chair)**, Cornell

**Michael Shaevitz**, Columbia

**tbd**, SLAC

**Thomas Roser**, BNL

**Susan Smith**, Daresbury Lab

**Mike Syphers**, Fermilab

**Frank Zimmermann**, CERN



# Down-selection Process (1)



- Choosing among technical alternatives not easy
  - MAP approach: specify “initial design configuration”
    - recognize that ideas will change
      - provide formal mechanism for this to happen
  - in a few cases, initial design configuration not yet specified
    - e.g., RF technology or 6D cooling
  - we have specified *procedure* to make decision on initial design configuration (or change it later)
    - responsibility for down-selection rests with MAP Director
      - aided by Level 1 leaders



## Down-selection Process (2)



- Procedural steps
  - in consultation with Mgmt Council, Level 1 leader defines set of technical criteria to judge against
  - after MAP Director's approval, criteria made available to proponents and all MAP members
  - MAP Director will appoint review group to evaluate alternatives and make recommendation
  - MAP Director makes final decision on choice
  - decision communicated formally to MCOG
    - MCOG can request external review, e.g. MUTAC, if desired



# Summary



- MAP organization is in place and functioning
  - a natural evolution of our NFMCC+MCTF heritage
    - multi-institutional to reflect MAP population
    - NSF has involvement via IB and MUTAC
- Responsibilities defined for upper-level leaders
  - clear reporting lines defined
  - procedure for down-selection specified
- Strong oversight mechanisms in place
  - involvement of resource managers at MAP institutions will be a key to our success



# Backups





# Management Tools (1)



- Budget planning and scheduling will be managed primarily at Level 2
  - lower levels used where needed to collect institutional information
- Primary tool is Primavera
  - a DOE-vetted tool for this purpose
- Excel used as input-output interface for collecting information from individual institutions
  - option exists to use MS Project for dealing with schedule and resource information transfer



# Management Tools (2)



- Capabilities exist to create
  - WBS dictionary
  - milestone schedule
  - milestone dictionary
  - resource-loaded schedule and funding profile



# Management Tools (3)



- Example output (no information content)

