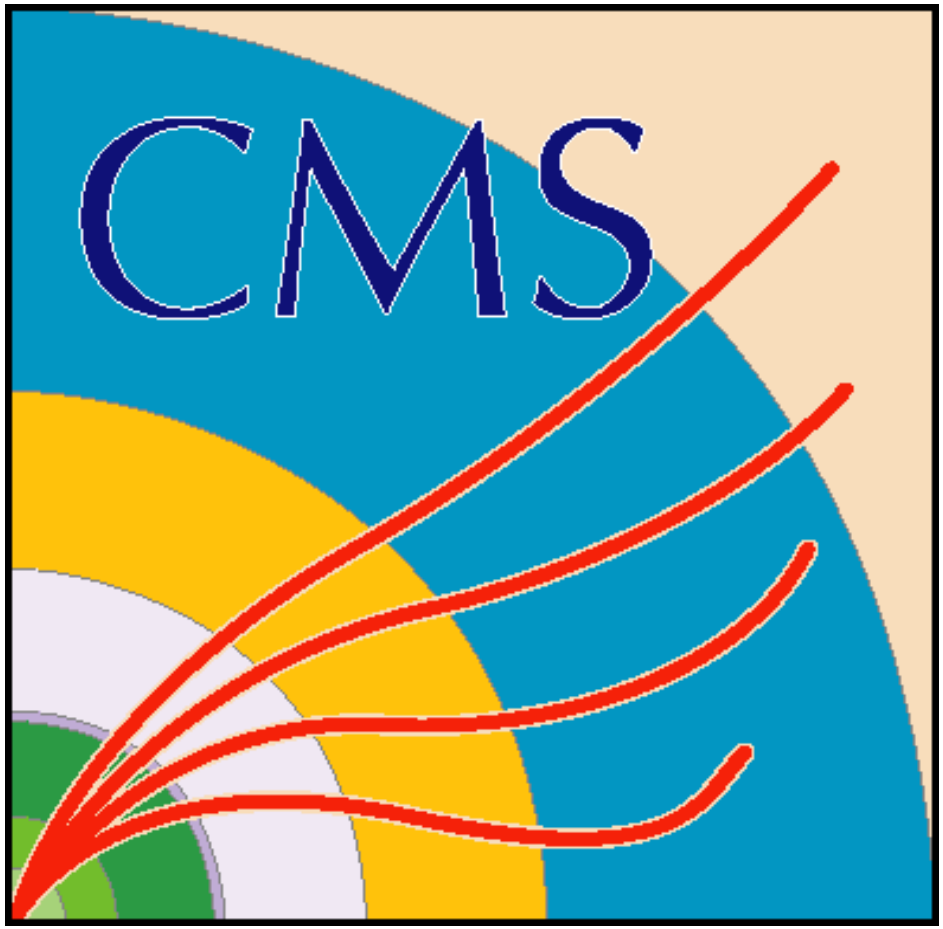
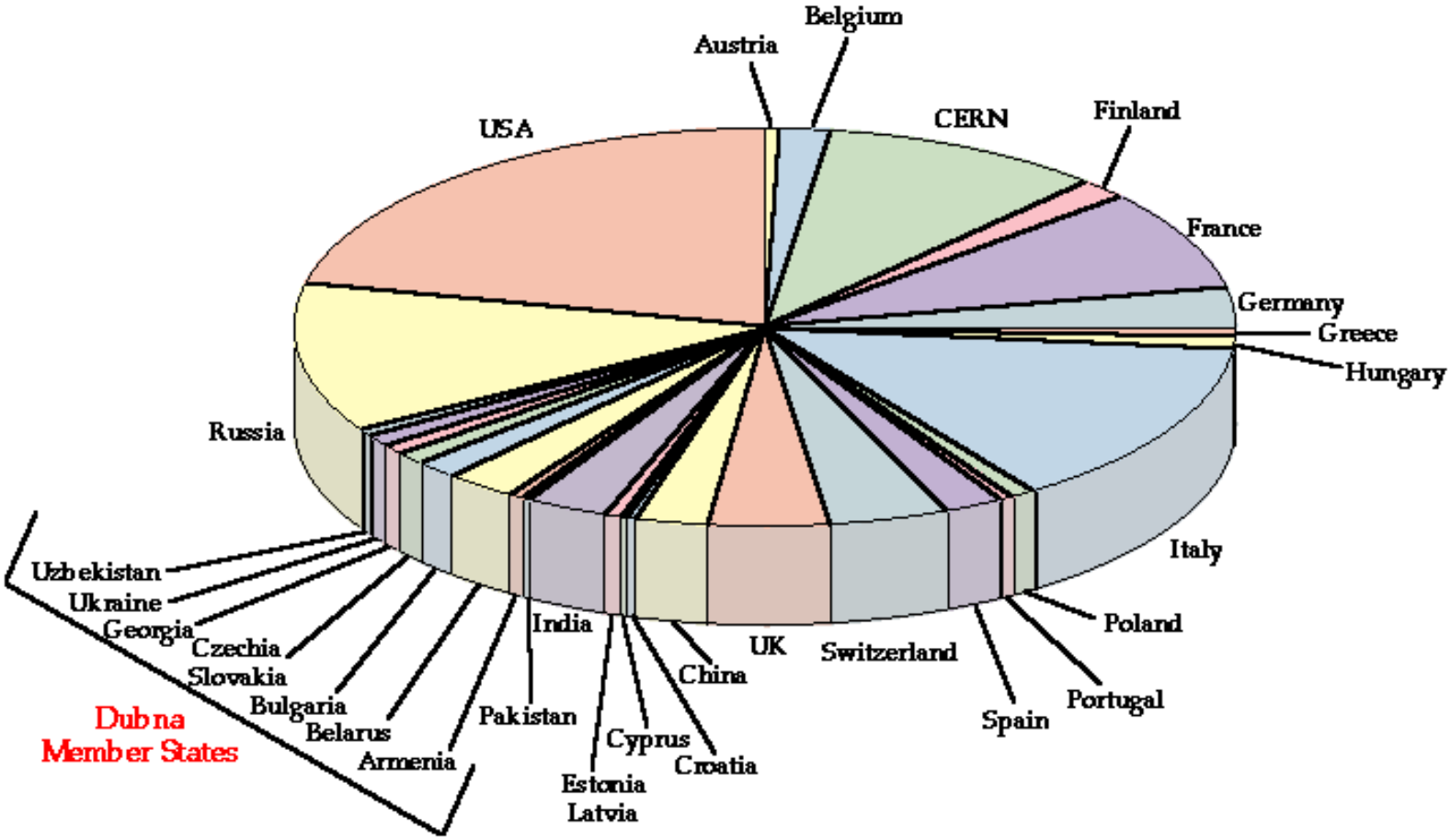
COMPACT MUON SOLENOID

Don D. Reeder
US CMS Spokesman
Chair -- US CMS Collaboration Board



CMS Collaboration

~1700 Physicists and Engineers
151 Institutes
32 Countries





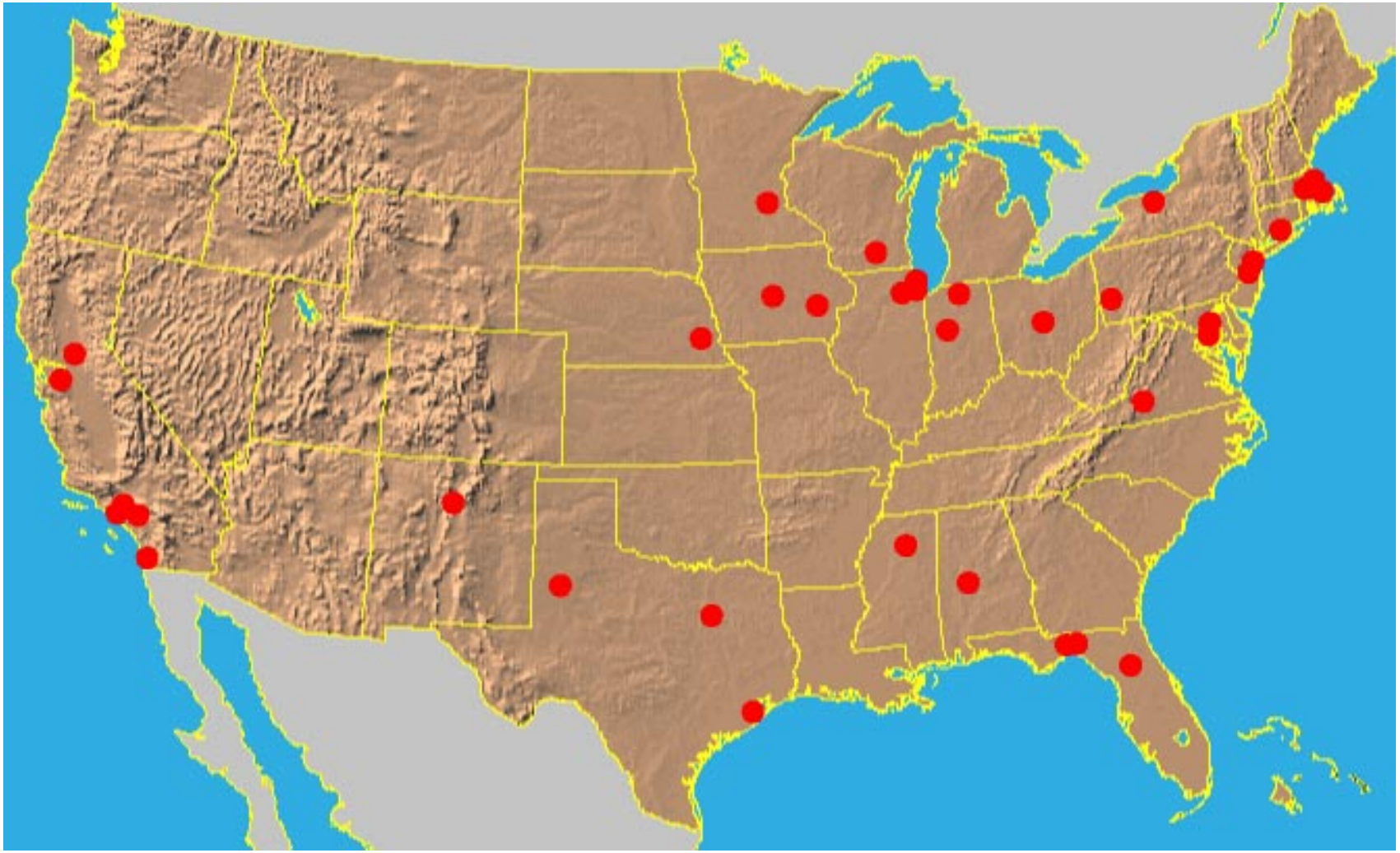
US CMS Collaboration

~300 Members from 34 Institutions

University of Alabama
Boston University
University of California, Davis
University of California, Los Angeles
University of California,Riverside
University of California, San Diego
California Institute of Technology
Carnegie Mellon University
Fairfield University
Fermi National Accelerator Laboratory
University of Florida
Florida State University
Florida State University (SCRI)
University of Illinois at Chicago
University of Iowa
Iowa State University
Johns Hopkins University
Lawrence Livermore Laboratory
Los Alamos National Laboratory

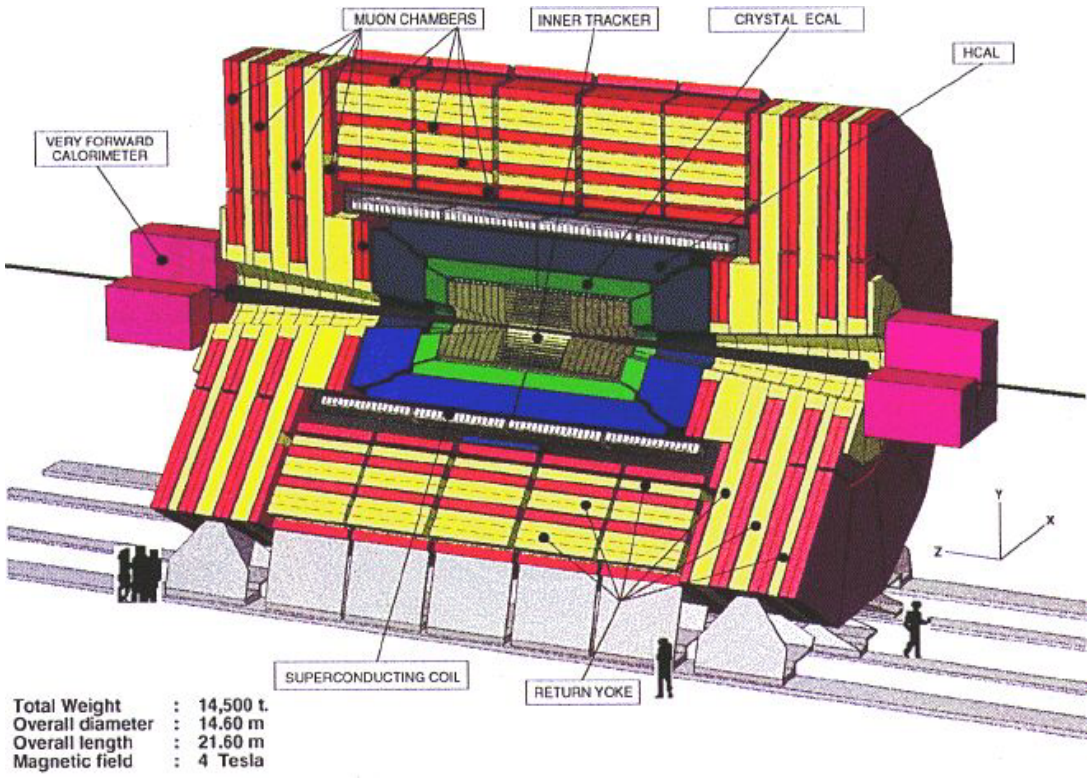
University of Maryland
Massachusetts Institute of Technology
University of Minnesota
University of Mississippi
University of Nebraska
Northeastern University
Northwestern University
University of Notre Dame
Ohio State University
Princeton University
Purdue University
Rice University
University of Rochester
Rutgers University
University of Texas at Dallas
Texas Tech University
Virginia Polytechnic Institute
University of Wisconsin

Geography of US CMS



~300 of ~2000 US Experimental Physicists

CMS Detector



- 4 T solenoidal field
- muon identification and coverage (EMU)
- missing E_T measurement (HCAL)
- e/γ identification and measurement (ECAL)
- Secondary vertex (E-pixels)
- iron flux return to remeasure muons (Common)

PHYSICS GOAL - to study new particles and interactions.

(Higgs, SUSY, ???? signals: leptons, jets, missing energy)

Institutions in Sub-systems

HCAL

Boston
Fairfield
Fermilab
Florida State
Illinois(Chicago)
Iowa
Iowa State
Maryland
Minnesota
Mississippi
Nebraska
Notre Dame
Purdue
Rochester
Texas Tech
Virginia Tech

Tridas

UC Davis
UCLA
UC San Diego
Fermilab
Florida
Iowa
Iowa State
MIT
Mississippi
Northeastern
Ohio State
Rice
Wisconsin

EMU

Alabama
UC Davis
UCLA
UC Riverside
Carnegie Mellon
Fermilab
Florida
Northeastern
Ohio State
Purdue
Rice
Texas-Dallas
Wisconsin

Tracking

UC Davis
Fermilab
Florida State (SCRI)
Johns Hopkins
Los Alamos
Mississippi
Northwestern
Purdue
Rice
Rochester
Rutgers
Texas Tech

ECAL

Caltech
Fermilab
Livermore
Northeastern
Minnesota
Princeton

Organizational Principles

Scope of CMS effort:

- The CMS detector, with a CERN budget of ~450 MCHF, is a large project ---perhaps ~900 M$ by our accounting.
- Responsibility rests with the CMS Spokesman, assisted by his Deputy and several staff members; Technical Coordinator, Resource coordinator, Project Office etc.
- Still too unwieldy, so authority delegated to the individual components subject to coordination and review at higher levels.

US Perspective

- to participate significantly and effectively in the larger collaboration and still be good stewards of the funds entrusted to us.
- Accept responsibility in entirety for some components. This permits a semi-autonomous organization subject to US accounting and management practices but still imbedded within the overall collaboration.

US CMS Project

Project:

- The project organization embodies line responsibility and authority. The duties of the managers and procedures are detailed in the Project Management Plan.
- All individuals serving in management positions are appointed and serve at the pleasure of the appointing authority.

What else is needed?

i) An independent structure or forum for discussion of issues and concerns of the US participants regarding the Project

ii) A means of addressing matters outside the Project scope.

iii) A mechanism for effectively interfacing to the larger collaboration

iv) provide information concerning the excitement and hard results of elementary particle experimentation to students and the larger community

US CMS Constitution

Membership:

- all members of the CMS collaboration from US institutions are members of US CMS.

Collaboration Board:

- is the primary body, composed of one representative from each US institution in CMS.
- ***1 Institution = 1 vote;*** preferably by consensus, otherwise majority
- elects a Spokesperson, who also chairs the CB and the EB, for a 2 year term - renewable.
- by majority vote acts to amend and to ratify modifications to the Constitution.

Additional members are welcome!

(No adjustment of Project funding)

Constitution II

Component Institutional Boards

composed of the CB representatives of each institution participating in a particular component or activity.

a coordinator is elected for each activity to input and act for the collaboration on matters concerning their activity.(2-year term)

Executive Board

- composed of the component or activity coordinators, *ex officio* the TD and the CPM and is chaired by the Spokesperson.

- together with the Spokesperson, the EB is responsible for the those issues beyond the scope of the Project.

Spokesperson

Duties of the Spokesperson

- To Represent the interests of the US members within CMS

  Examples:

  Member of the CMS Management Board

  Participant in the Detector Working Group whose work resulted in the Detector protocol of the US-CERN Agreement.

  Participant in the negotiation of the scope revisions with the larger CMS collaboration

  Present US CMS activities to HEPAP et al.

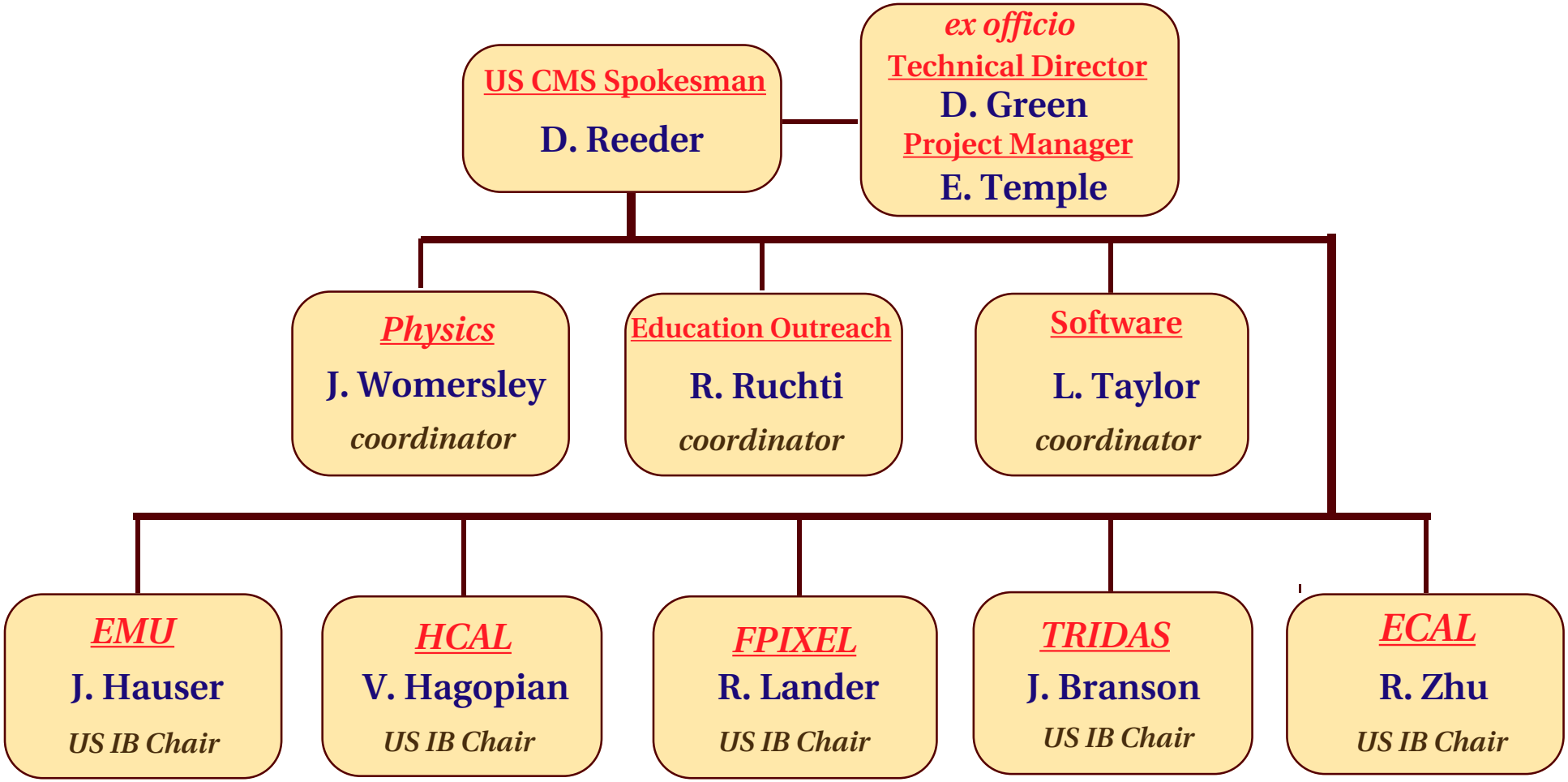
  Member of the Speakers Committee for CMS

- To organize and chair meetings of the CB and EB.

- To conduct elections of the IB Chairs and Coordinators.

Collaboration Organization

Executive Board -1998



Beyond the Project

Need to segue seamlessly from Project to Experiment

Among the requirements are:

- need large volume, rapid and secure communication and data transfer.
- need to actively participate in the analysis of physics results
- meet our responsibility for operation and maintenance of our components.
- to communicate the progress and results both within the HEP community and to the larger lay community.

How?

- up-to-date networking facility (ESNET progeny?)
- timely acquisition of computing, data storage and software
- ramp up the pre-op activities as the project winds down.
  (a rough estimate of the costs for this is ~ 9M$ annually at completion of the ramp-up.)
- education and outreach committment with sufficient resources (people + $)