

THE VIEW FROM NSF

- **Physics Div. Goals and LIGO**
- **Physics Division Update**
- **LIGO II**

**Joe Dehmer
Division of Physics, NSF**

**LSC Meeting 7
Hanford Observatory, Richland, WA
August 15, 2000**

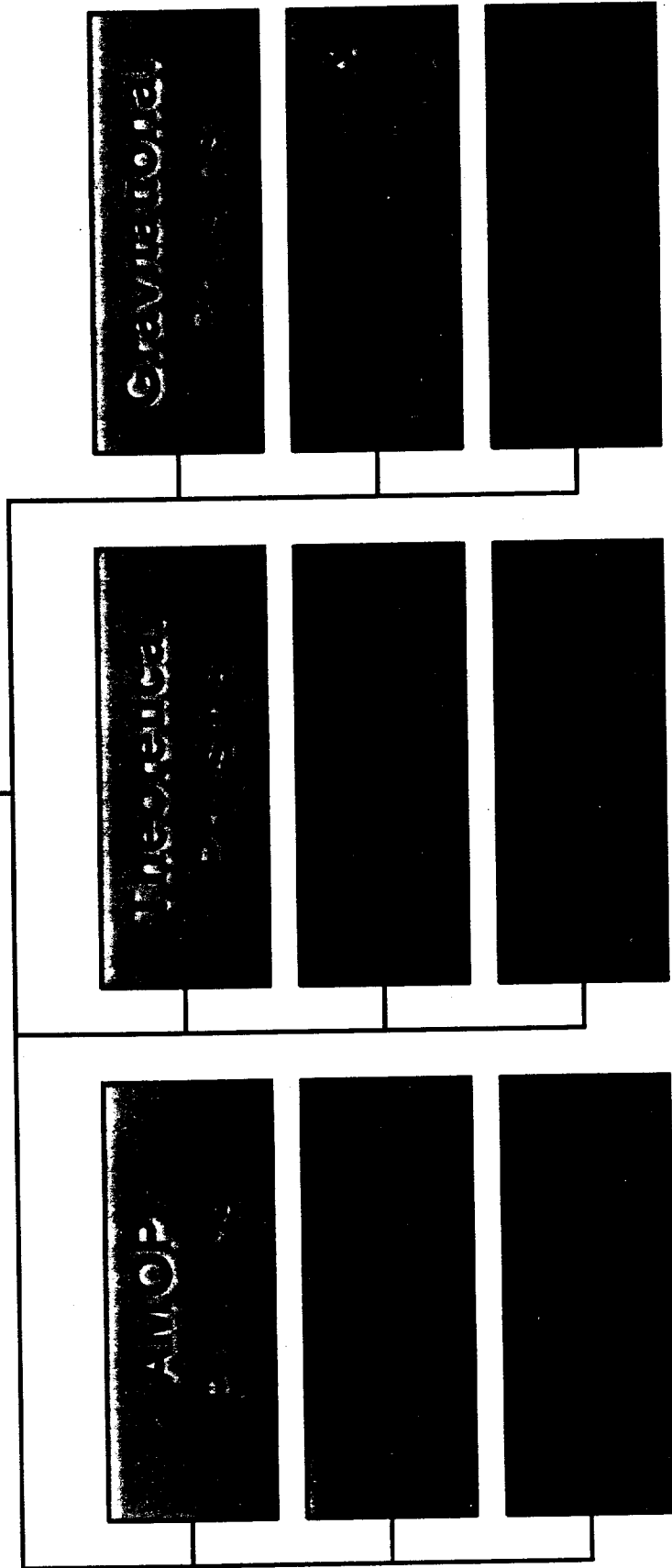
AN IRREDUCIBLE SET OF STRATEGIC GOALS

- Intellectual Frontiers
- Connections
- Education
- Stewardship

DIVISION OF PHYSICS

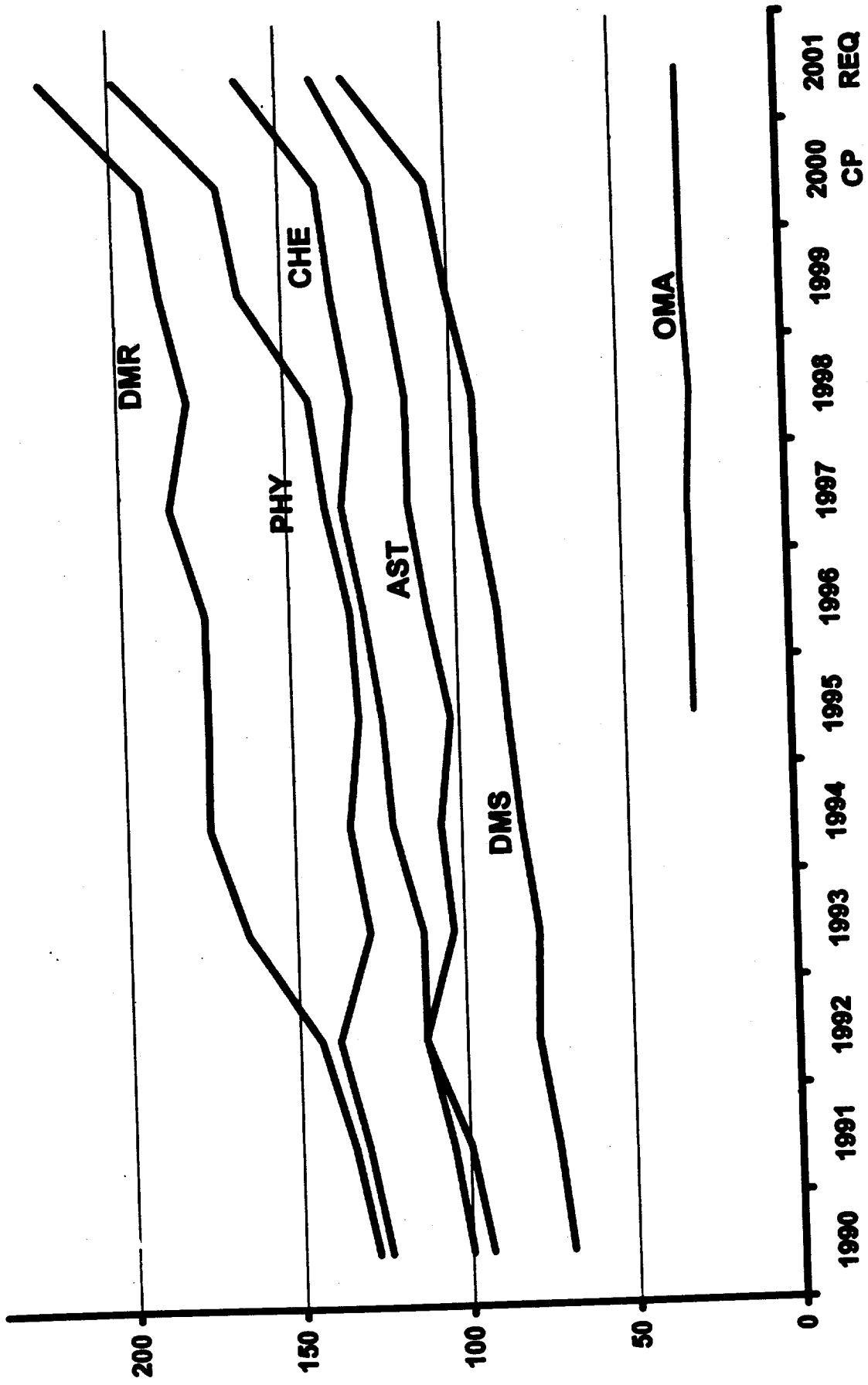
COMPUTING
FACILITIES

ADMINISTRATION
AND SUPPORT



MPS Divisional Budgets, FY 1990-2001 Request

(Dollars in Millions)



Excludes construction funds for NHMFL (\$28.4 M, 1990-92), GST (\$69.5 M, 1991), Gemini (\$92 M, 1991-93), LIGO (\$246.5 M, 1991-97), and the LHC (\$64.3 M, 1999-2001 Req.).

RECENT DEVELOPMENTS

- Major Research Equipment (MRE)
 - MPS threshold ~\$40M
 - LIGO and LIGO II discussed with MRE panel
- Major Research Instrumentation (MRI)
 - Veritas (\$906K)
 - Others in nuclear (2), AMOP, gravity
- Information Technology Research (ITR)
 - GriPhyN

PROGRAMS TO WATCH

- Information Technology Research (ITR)
- Nanoscale Science and Engineering (NSE)
- Major Research Equipment (MRE)
- Major Research Instrumentation (MRI)
- Physics Frontiers Centers (PFCs)
 - NSF 00-108, pre-proposal deadline 9-18-00
 - NEW in FY 2001
 - 3-5 awards in \$0.5 to \$4M/yr for 5 years
 - Intellectual frontiers of physics

PHYSICS FRONTIERS CENTERS

- Empower and embolden universities to make transformational advances in physics
- Provide mix of talent, tools, and scale needed
- Open, direct (re)competition across sub-fields
- Exciting, broad educational setting
- Strengthen diversity & outreach
- 5-yr., \$0.5M/yr. to \$4M/yr. awards
- Goal is 25 PFCs, from 12 PFC-like activities now
- Compatible with other strategic goals

SOME PHYSICS FRONTIERS,

circa 2000

- Bose-Einstein Condensates, Atom "Lasers"
- Biophysics of Single Molecules
- Energy and Sensitivity Frontiers (LHC and RSVP)
- Dark Matter, Dark Energy, ν Physics (ICECUBE)
- Gravity Waves, Gravity Wave Astronomy
- String Theory, Branes, Duality, Quantum Gravity
- Quark-Gluon Plasma, Supernova Dynamics
- Quantum Information Science
- Ultra-Fast, Ultra-Intense Laser Fields
- Chaos, Complexity, Computational Physics

OBSERVATIONS

- **Cart-before-horse “problem”**
- **Name too serial**
- **Reposition from “might not see anything” to “pushing back frontiers to make discoveries”**
- **Re-educate new leadership, e.g., staged plan**
- **Any pre-construction R&D must be critical to construction to be assigned to MRE**
- **Cast improvements as advancing frontiers**

Note 1, Linda Turner, 09/18/00 05:16:09 PM
LIGO-G000264-00-M