

Snowmass 2001

GREAT QUESTIONS

with

GREAT CHALLENGES

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Driven by the GREAT QUESTIONS

EWSB

Matter Asymmetry
Accelerating Universe
Neutrino hi jinks
Dark Matter

...

Number Growing

Expanding Horizons

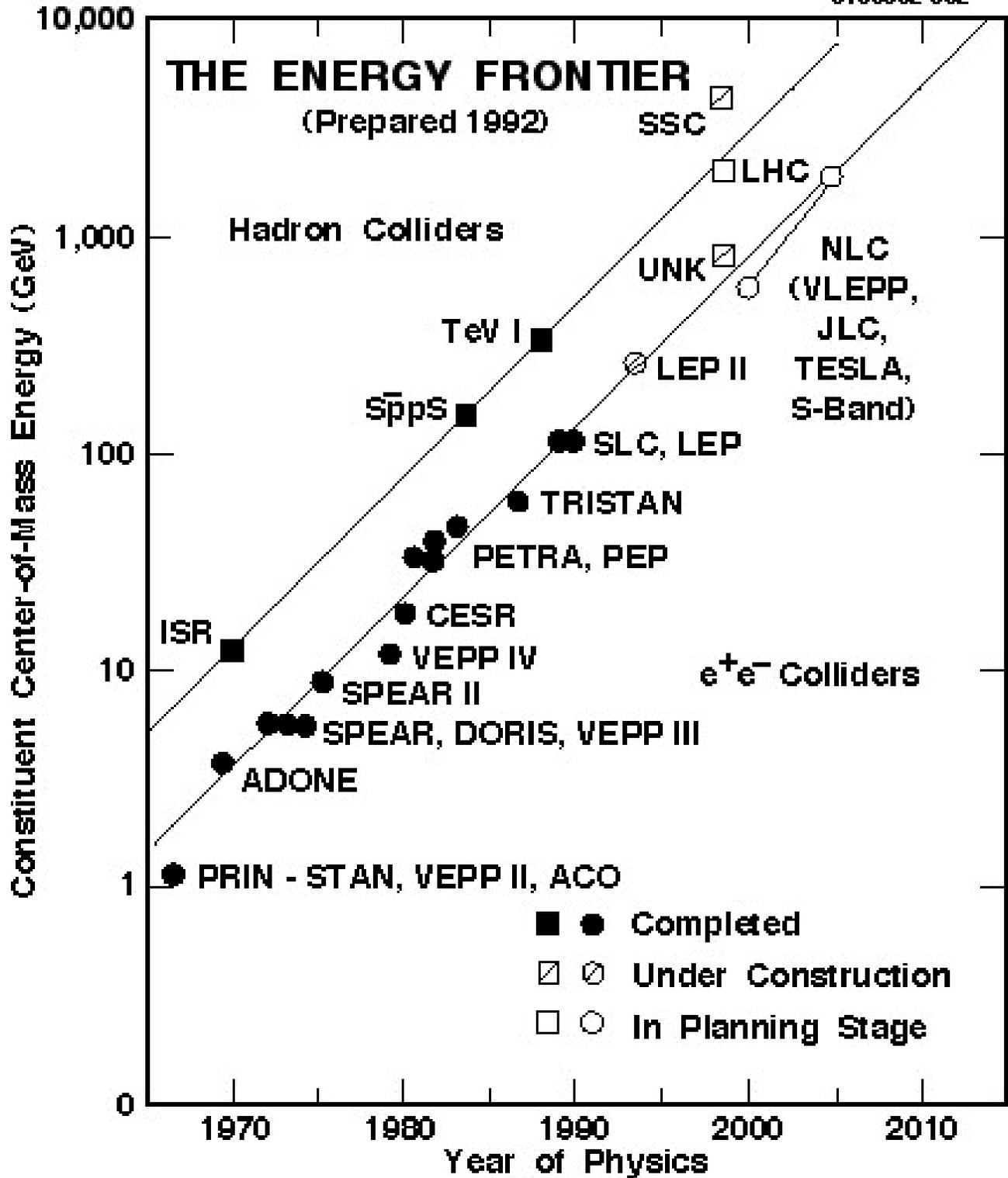


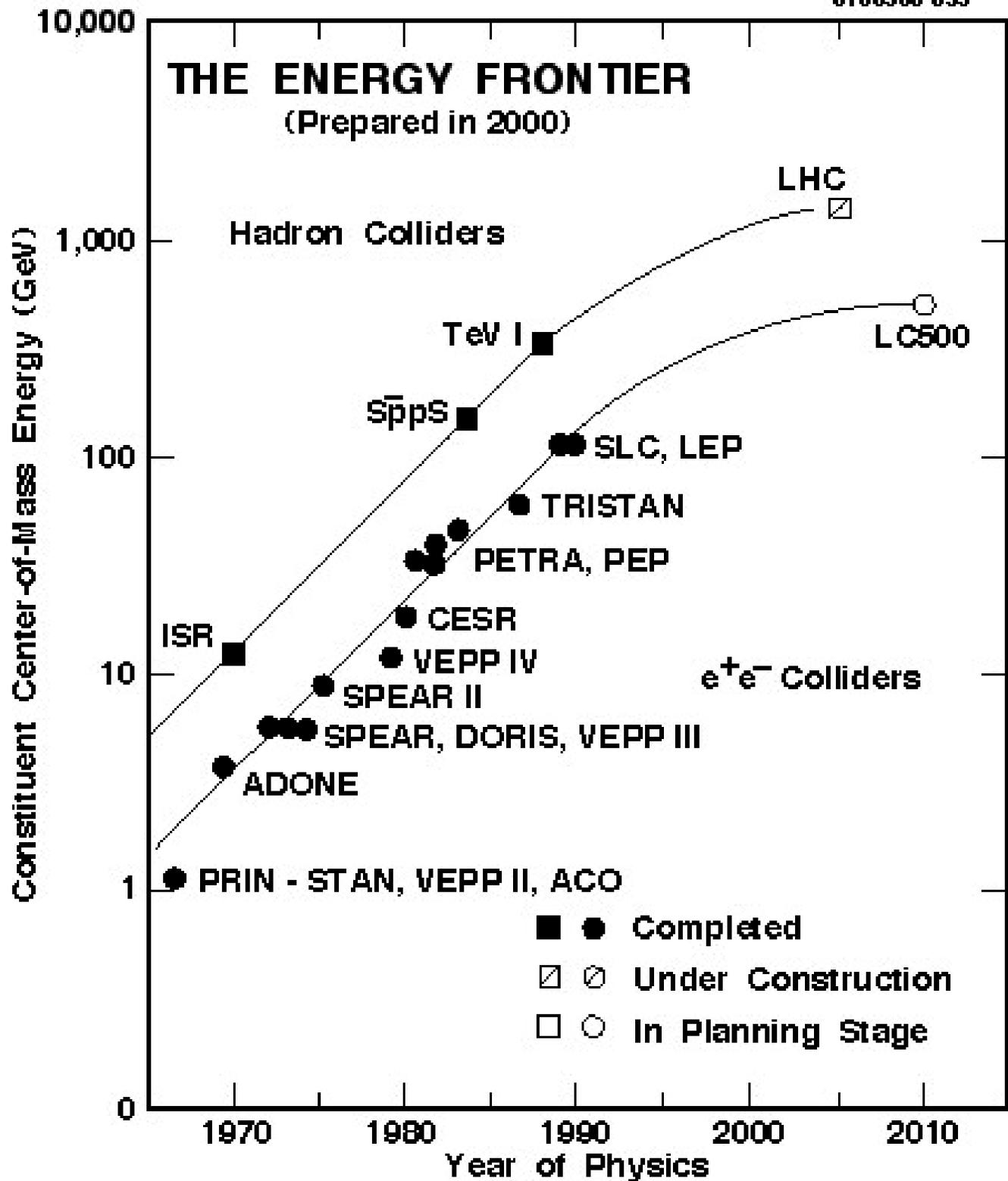
*Pursuit of this part of truth brings VERY
tough challenges*

Scientific-Technical Challenges and Social Challenges

(Tightly interrelated of course!)

- Scientific-Technical Challenges
 - What tools needed for addressing the great questions and how do we acquire them?
 - Non accelerator approaches, e.g. underground labs, space craft, novel small experiments... *doing pretty well*
 - Accelerator based- record show the unfortunate trend... *not doing so well.*





In a nut shell - we've fallen off the Livingston curve

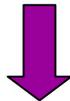
- Recovery will require a culture change
- On the Scientific-Technology component of the accelerator challenge, 3 channels being followed:
 - New materials & processes appl'd to tried and true accelerator methods
 - Learn to engineer with atomic scale fields
 - Use other particles.
- *We're not doing nearly enough in any of them!*

- *THESE ARE NOT JUST ENGINEERING PROBLEMS!*
- *THESE ARE NOT JUST RESOURCE PROBLEMS!*
- *THESE ARE PRIMARY INTELLECTUAL PROBLEMS OF THE FIELD and OUGHT TO BE TREATED AS SUCH by EXPERIMENTERS AND THEORISTS ALIKE*

Social Challenges

-For all parts of the field in all parts of the globe-

- Suffering from Maturity
 - Each step more difficult (expensive)
 - Horizons expand (more territory to cover)



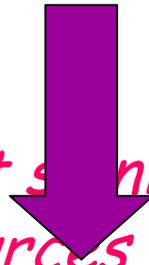
*More opportunities for investing resources,
resources that we don't have*

WHAT TO DO?

- Boost productivity
 - ideas and technology
- Prioritize
 - focus on a sub-set
- Expand base
 - internationalize
 - proselytize
 - Bring along our patrons by the excitement and manifest realism of our plans

While doing so...

- Must maintain balance in ongoing programs against essential, major new frontier investment
 - Leave scope for clever ideas carried out in the light of the lamps we have
- Establish new lamp in the area beyond the current circle of light-- even in a flat budget environment



Need to convert significant fraction of current resources to frontier facility

- Need 2 new mechanisms:
 - Practical, new way of viewing ourselves and acting as an inter-linked community both domestic and international

- (1) Domestically need something like a national PAC that is able to take account of the international scene.
 - Our agencies have the authority to do something like this if we ask

- (2) Need a mechanism for mobilizing project resources on a world scale.
 - No existing authority--we must create one out of existing institutions and the power of our vision of what needs to be done and how to do it.

- Others have done it and we can too
 - We have been going much of this in our large detector groups for years
 - Need to transfer some of that culture to the accelerator business
 - Another reason for particle experimenters to join in the accelerator business

SHOULD WE BE OPTIMISTIC?

YES WE SHOULD!

Now is the time to take the measure of our situation and pull together to take charge of our fate.