B.T.Fleming
October 15, 2008

LAr WG Status

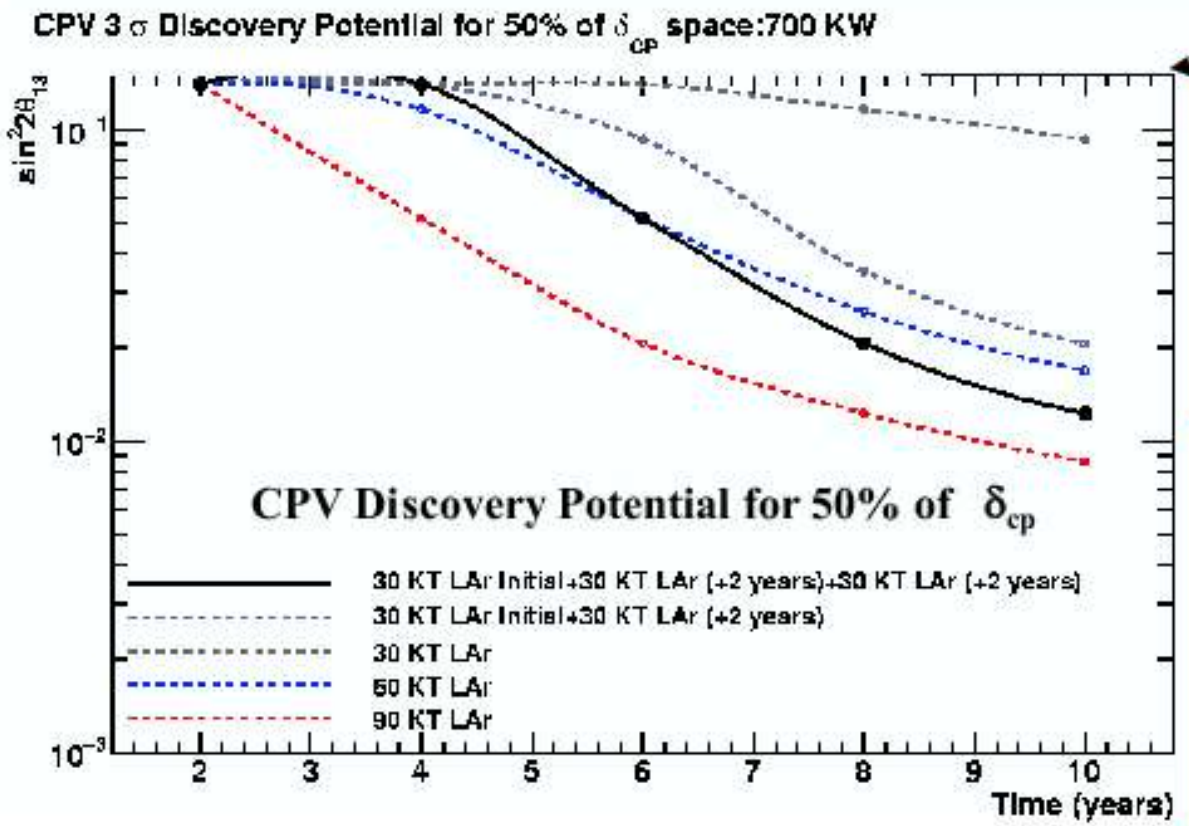
Baseline detector plan:
5+(25) ktons

First step is 5 kton
- good step in scale, cost, and physics

Next step is 25ktons although design would be driven by what we learn in the next few steps: (ie: can we live without evacuatable vessels..)

Steps beyond this in ~30kton modules: Significant physics gain as you add more modules

Sensitivities as a function of time for LAr Detector : Scenario 1 and "Detector Module" = 30 KT



For CVP Discovery we need a lot of Mass : 30 KT LAr Total is NOT enough unless angle is very big!

No significant reach is gained when starting from Day 1 with the total Detector Mass, compared to adding Mass every 2 years.

The black curve is the "nominal" scenario 1
The dotted curves are :

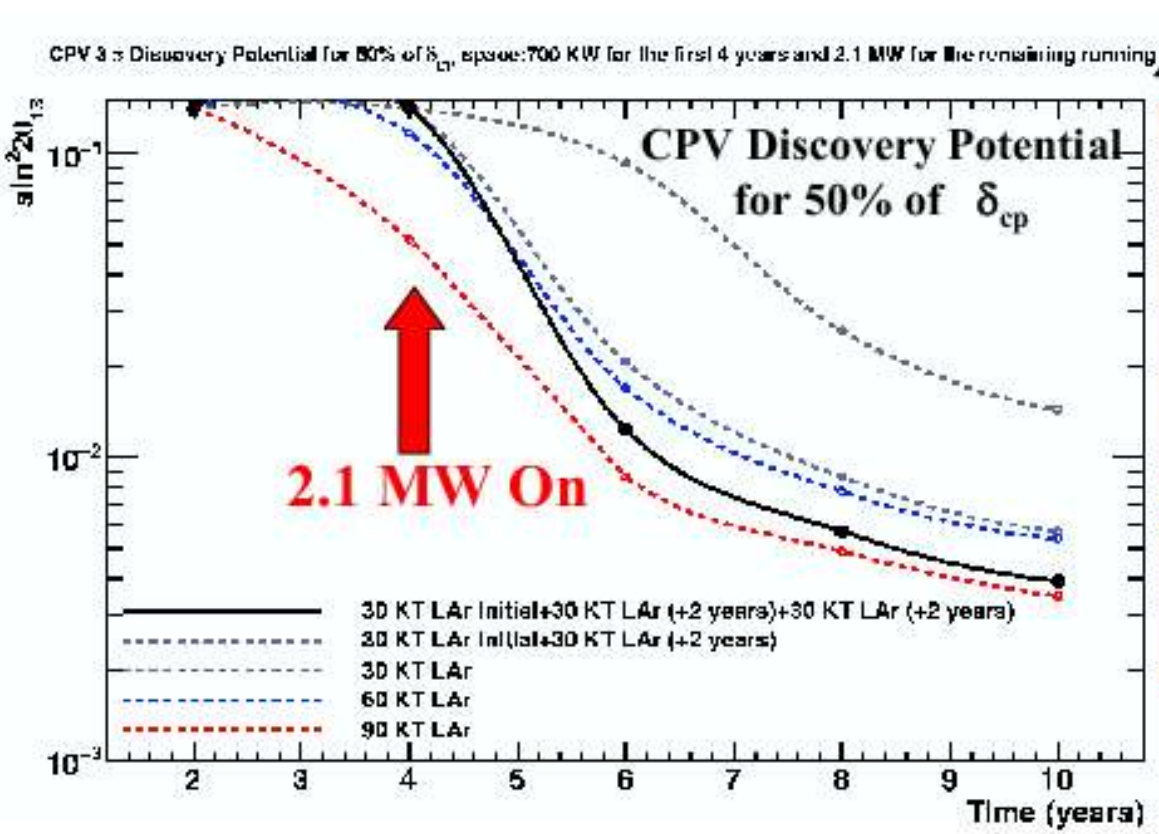
30 KT total with no further addition of mass
30 KT +30 KT with no further addition of the 3rd Module
60 KT total from day 1
90 KT total from day 1

PRELIMINARY

N. Saoulidou

Sensitivities as a function of time for LAr Cherenkov : Scenario 2 and "Detector Module" = 30 KT

N. Saoulidou



No significant reach is gained when starting from Day 1 with the total Detector Mass, compared to adding Mass every 2 years.

ProjectX with a 2.1 MW beam helps a lot!

The black curve is the "nominal" scenario 1
The dotted curves are :

30 KT total with no further addition of mass
30 KT +30 KT with no further addition of the 3rd Module
60 KT total from day 1
90 KT total from day 1

PRELIMINARY

Detector Depth:

300 ft:
- Cheaper and easier in terms of safety
- May compromise proton decay physics

4850 ft:
- More difficult and more costly
- Better reach in physics
- Same location as next set of detectors

In between: Infrastructure not in place – no gain in cost

Working to answer this...

Physics Reach

Possible Organization of LAr Collaboration within DUSEL LBL collaboration

LBL LAr

LBL LAr Project Manager

LBL LAr Spokesperson

LBL TMB Board

LBL Water C Executive Board

LBL LAr C Technical Coordination

LBL LAr WG Conveners

LBL LAr Resource Coordinator

Spokesperson and conveners to be voted on by “sub-system” IB

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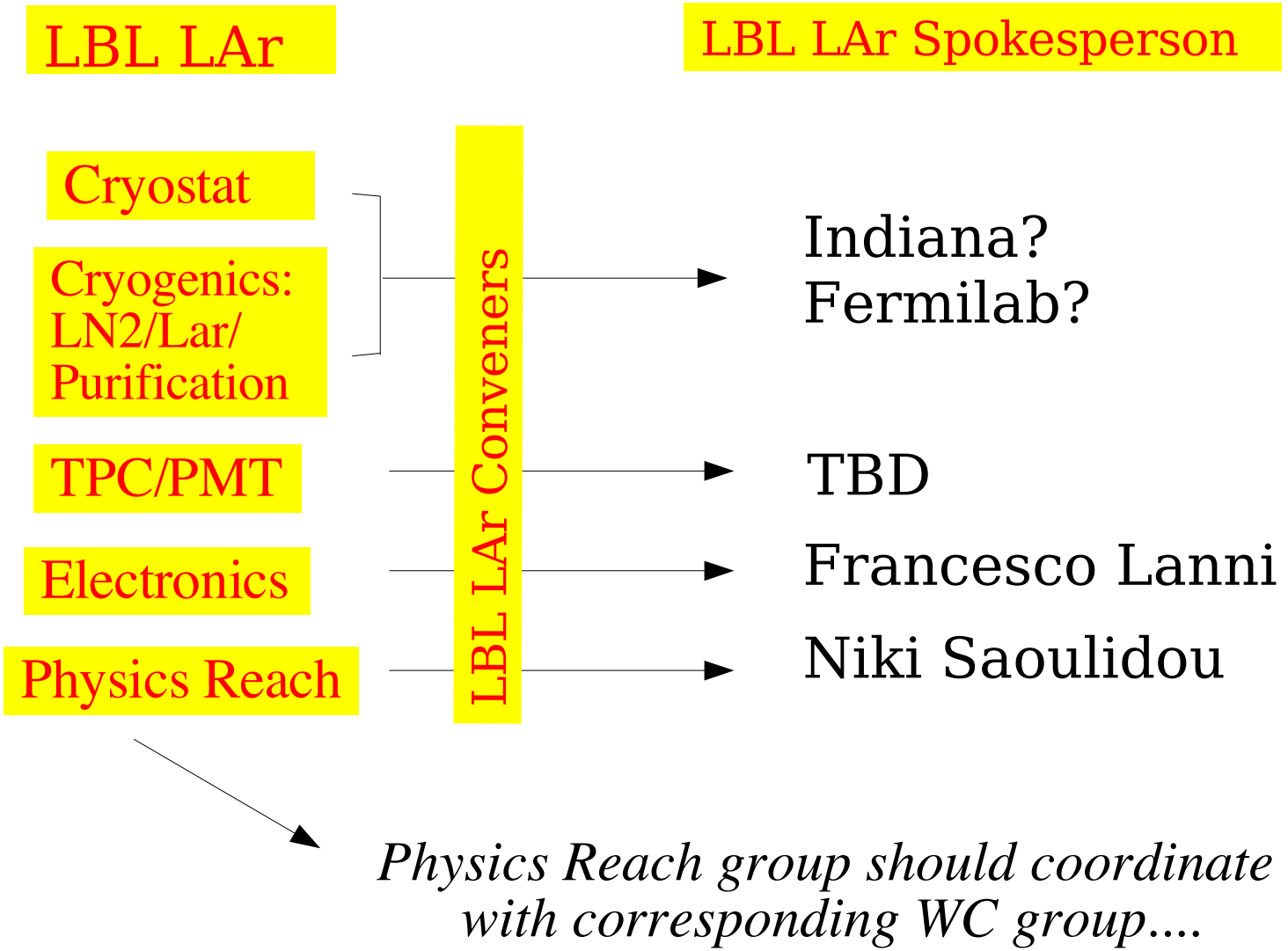
Group structure:



Getting collaboration structure set up to facilitate work

- Identifying WG conveners
- Identifying engineering resources for cryostat, cryogenics, etc.
- Ongoing Electronics R&D program with potential international collaboration
- Ongoing work with Chris Laughton to address issues related to underground cont.
- Ongoing work on physics reach, ie: plots shown