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CC:
Subj:

Spaghetti calorimetry in '91 test beam cycle:

Goals:

1. understand in details the performance of the prototypes (laminated lead/iron, RGP, dichromatic)
2. construct and establish the performance of the two-segment fiber calorimeter
3. construct and extablish the performance of the liquid scintillator prototype (for the forward angles)

Test beam needs:

1. Systematic studies of the laminated prototype:
   - scan the front face to study uniformity of response, effect of cracks
   - study the angular dependence of resolution and response. Tilt in the plane of lamination and in the plane ortoghonal to lamination
   - study the effect of filters on the hadron energy resolution
   - study the gate dependence of the response to hadrons
   - investigate e/h ratio as a function of containment and gate width
   - investigate the e/pi separation as a function of energy and angle of incidence
   - check the stability and accuracy of the source calibration system

   Total time needed 20 shifts

2. Studies of the RGB prototype
   - understand the constant term in the resolution, check uniformity of the response
   - study em/hadronic cross-talk, as a function of the energy

   Total time needed 7 shifts

3. Dichromatic calorimeter
   - establish feasibility of the color separation scheme
   - check spatial uniformity, constant term in the resolution, (all related to fiber-to-fiber uniformity)
   - study linearity and reslution as a function of energy
   - check electron/pion rejection capability

   Total time needed 10 shifts

4. Liquid scintillator prototype
   - demonstrate the feasibility of the technique
   - check energy resolution, constant term, uniformity of response

   Total time needed 7 shifts

5. Two-segment fiber prototype
   - linearity of response to hadrons and electrons
   - resolution and constant terms
   - response and resolution as a function of gate width
   - spatial uniformity, effects of tower boundaries
   - electron pion separation as a function of energy
   - compensation studies: e/h as a function of energy, gate width etc..

Total time needed 30 shifts

Comments:

- Studies 1-4 should be carried out in the first half of the test beam cycle, two-segment prototype should be ready by March '91.
- MT test beam would be the preferred beam line, given the support table we have constructed there. Should we move to another beam, it should be decided asap, to give enough time to prepare the support tables, control systems etc