TileCal receivers (1)

◆ **LAr receivers will be built by Pittsburgh.**
  ▼ **Now confirmed by US DoE.**

◆ **Pittsburgh would also like to build TileCal receivers.**
  ▼ **The only sensible solution — very similar problem, they have the expertise, etc.**
  ▼ **They must make a proposal to DoE (even though *we* pay).**
  ▼ **They need a *specification* for the signal-handling.**
    + **They say that *we* must write it, with help from TileCal (Rio) group.**

◆ **Design criteria:**
  ▼ **As similar to LAr as possible, both electrically and mechanically.**
    + **Use same crates, controls, infrastructure.**
  ▼ **Avoid summing of trigger-tower signals at boundaries.**
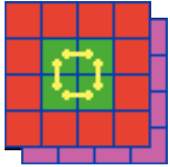
TileCal receivers (2)

◆ **Some design issues:**

▼ **Use of patch panels to make input layout more like LAr.**

▼ **Can muon level-1 signals use 'our' cables?**

+ Additional patch-panel complication offset by use of 16-pair cables (same as LAr) — fewer cables overall so less space needed, lower cost.

▼ **Specification of input cable connectors.**

▼ **Specification of 'interconnect' boards for re-ordering.**

▼ **Do we want a facility to view analogue signals, like LAr? Is there any other monitoring requirement?**

▼ **Number of modules, number of channels per module.**
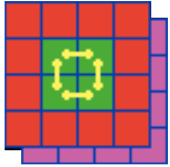
TileCal receivers (3)

◆ **Pulse-handling issues** *(including questions from Bill)*:

▼ **Input cable impedance and coupling; is transformer coupling acceptable?**

+ **It will introduce a luminosity-dependent baseline shift for monopolar pulses whose level should be estimated.**

▼ **Do we need to reshape pulses?**

+ **LAr uses 15!ns integration to limit bandwidth, is that ok?**

+ **Any other changes to width or risetime?**

▼ **Gain values and range needed for conversion to E_T.**

+ **Including compensation for cable attenuation.**

▼ **What level of noise from the receiver can be tolerated?**

▼ **What is the requirement on linearity?**

▼ **What is the polarity of the input signals?**