

Plans for AIDA WP9.5 in Bergen

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AIDA Plans for WP9 in Bergen



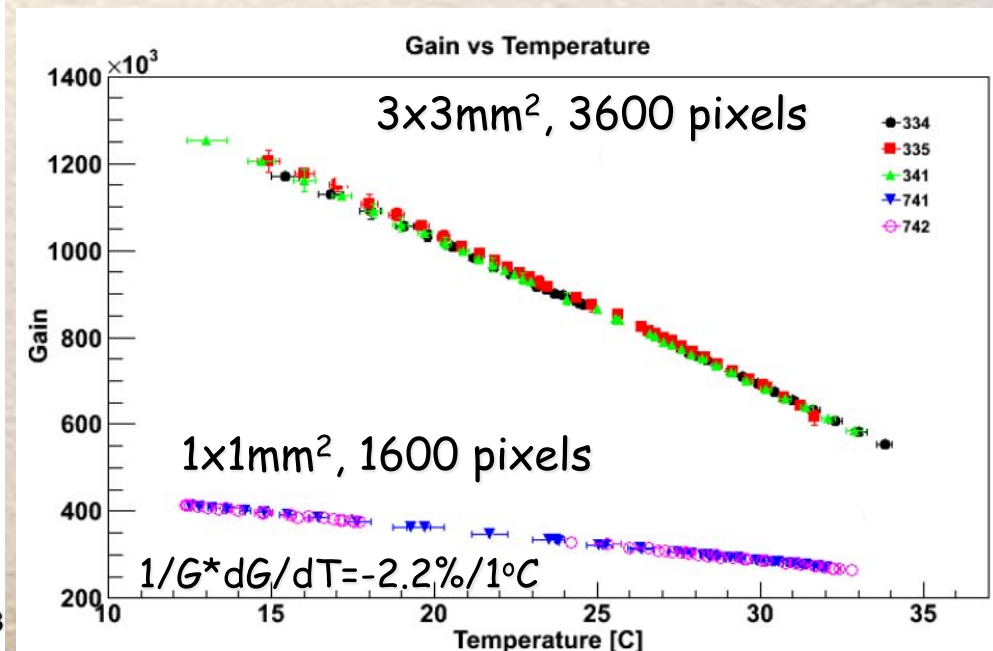
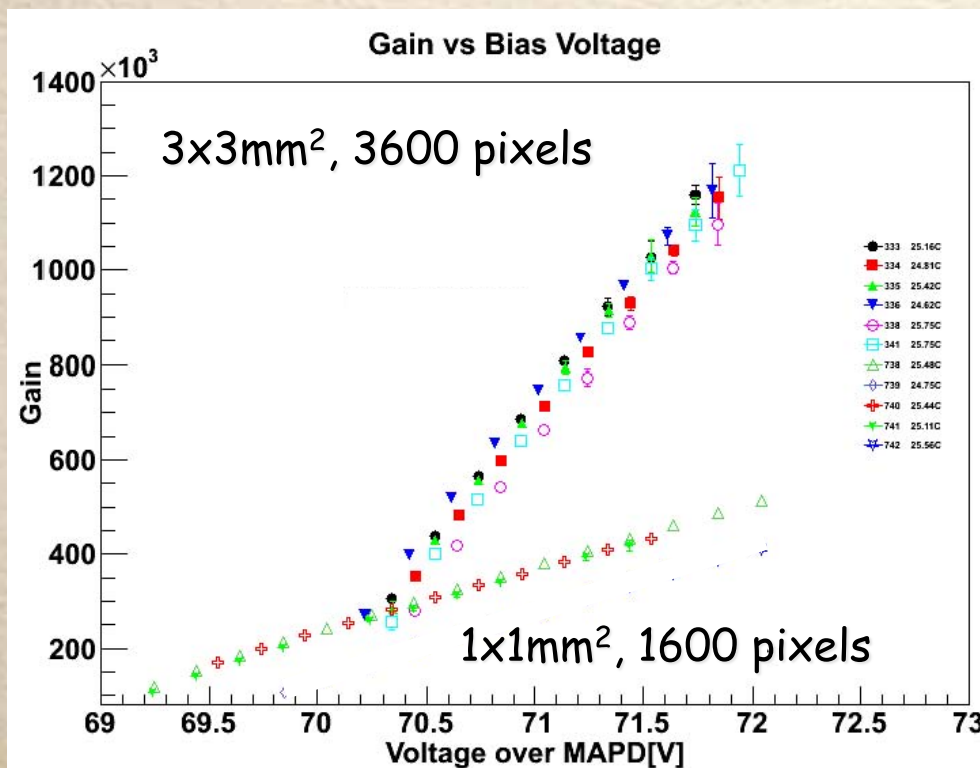
- In an HCAL for ILD we have $\sim 10^6$ channels \rightarrow corrections due to temperature changes (ΔT) need to be done automatically online
- Collaborate with Prague on development and testing of a controller that automates corrections due to ΔT by adjusting the overvoltage ΔV
- We will hire a postdoc for three years starting May 2011
7 months EU, rest NFR
- We try to get master students in the fall
- In Bergen, we have a well-equipped lab
- We have a setup for testing SiPMs
- We have MPPCs, SiPMs tiles





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- The gain of SiPMs depends on overvoltage ΔV and temperature T
 $G = f(\Delta V, T)$ (both dependences are linear over a wide range)
- By changing ΔV as a function of T we can keep the gain constant
- We have measured V and T dependence of gain in Bergen for MPPCs





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- Perform initial measurements to determine algorithm (Bergen)
 - SiPM gain versus overvoltage
 - SiPM gain versus temperature
 - Parameterize dependences by simple algorithms for $\Delta V = f_v(T)$
- Build controller (Prague)
 - buy power supply, temperature sensors
- Test controller with various SiPMs (Bergen, Prague)
 - need new SiPMs
- Issues
 - Where do we need to measure the temperature?
 - How many sensors?
 - How do we handle multiple corrections in one power supply?
(power supply feeds several SiPMs which may have different V_{break} and ΔV dependence)