Energy Deposition Group

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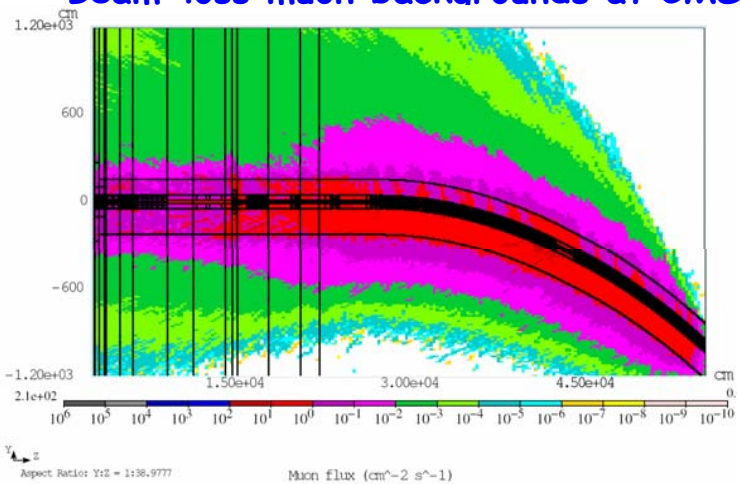
Recent Accomplishments (1)

- **Main Injector:** Collimation system design (AD, NM, IR)
- **Tevatron:** Crystal collimation experiment: justification (AD, NM)
- **LARP & CMS:** Feasibility of IR configurations at 10^{35}: SC magnets and detector backgrounds (NM, IR)
- **ILC:** Beam Delivery System (collimation and muons); 0.15 to 5 GeV transfer line collimation; dark current beam loss in Main Linac; ILCTA beam dumps and shielding (AD, NM, SS)
- **MTBF, MuCool, HINS, Booster, MERIT, kaon experiments, muon collider:** Particle yields, energy deposition, beam loss, shielding (AD, NM, IR, SS)
- **MARS Code:** Development of advanced physics models and extension of capabilities (NM, IR, SS)
- **Computer Servers:** Relocated to XGC-108 & USPAS support (MK)

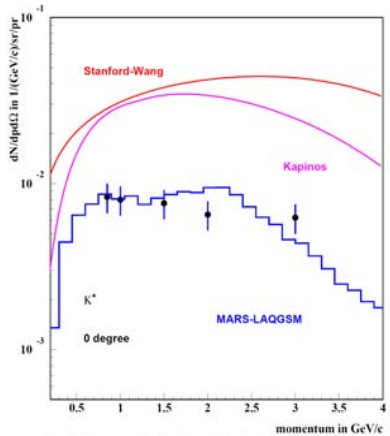
Recent Accomplishments (2)

Beam-loss muon backgrounds at CMS



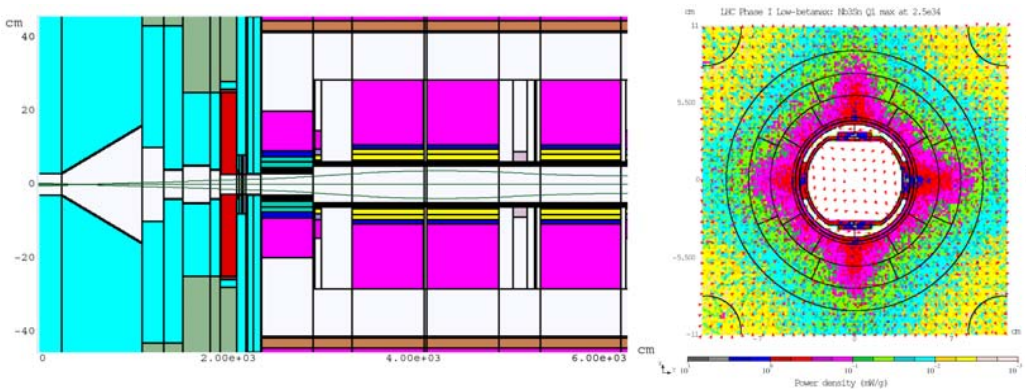
Main Injector collimators

K^+ yield at 8 GeV: MARS *vs* data *vs* old models

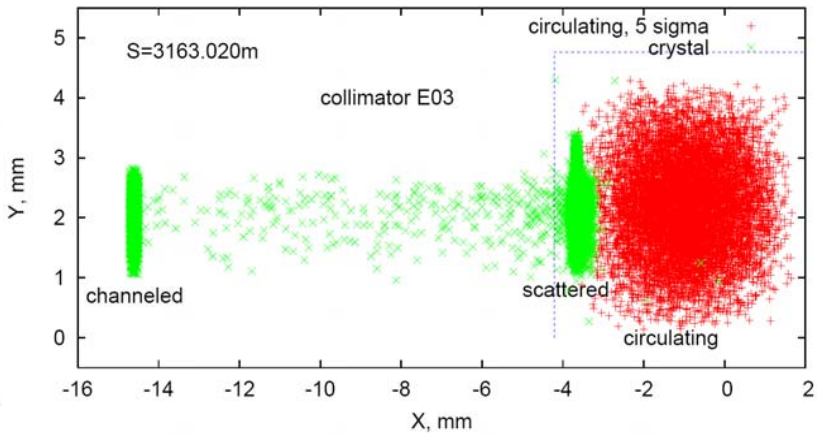


Positive kaon production from 10 cm lead target at 8 GeV/c

LHC Phase-I JIRS: NbTi/Nb3Sn triplet w/absorbers



Crystal collimation optimization



Computing Support

- **Cartoon Cluster**
  - 16 Sun Solaris servers
  - 6 Intel/AMD Linux servers
  - 300+ users

- APC
  - 40+ users
- USPAS
- Relocated servers to XGC-108
  - Room for growth
  - Better A/C
  - Power circuits

- **Heimdall Cluster**
  - 64 slave nodes and growing!
  - 60+ users and growing!

CY08 Plans

- **Tevatron/LARP:** Crystal collimation experiment: replace crystal & goniometer, extend beam diagnostics, EOS beam studies, MOU and work towards full-scale studies in 2009-2010
- **Project X:** Design of MI primary and secondary collimators compatible with higher rate and able to withstand accidental intercept of the full beam; phase-space painting injection; collimation in 8-GeV Linac and transfer lines
- **LARP & CMS:** Joint IR studies (JIRS) for LHC Phase-I upgrade (2.5e34) to optimize the triplet with a US Nb3Sn quadrupole; beam induced operational backgrounds and accidental rad. loads on CMS
- **Muon Collider:** 56-GeV MI beam (targetry etc.), backgrounds for new MC parameters and strawman detector, exotic beams
- **ILC (?), MARS Code (HI, DPA, EMS, GUI), etc.**