Comparison of Propagators

• **Gismo vs. G4**
• Propagate the same ray using both propagators
• **Compare reported radiation lengths traversed**
  - Particles start downward at \( z = 700 \), with an arc length of 700
  - \( 0 < x_0, y_0 < 200 \)
  - \( 0 < \phi < 2\pi \)
  - \( -1 < \cos(\theta) < -0.707 \)
Distribution of Rays
Radiation Lengths Traversed

G4Propagator

Gismo Propagator
Difference: Gismo - G4
Difference vs RadLen
Diff vs CosTheta
Diff vs Azimuth
Conclusions

• All kinds of complicated stuff is going on.
• The propagators agree to within 0.02%.
• In general Gismo propagator reports less material than does the G4 propagator.
  – Tracy thinks he understands this
• It’s time to make the G4 propagator the default.
• Further, it’s time to abandon the gismo propagator so that we can start making upgrades without maintaining two versions.