

Status of Calibration

Francis Froberg

University of Zurich

GERDA Collaboration Meeting, Cracow
18. February 2008



University of Zurich



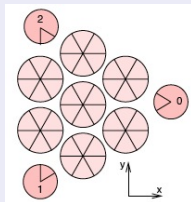
Overview

- 1 Overview
- 2 Preliminaries
- 3 Boundary Conditions
- 4 Simulations
- 5 Teststand

Preliminaries

Simulations from Munich 2005

- Old phase II configuration
- Collimator material: lead
- Used opening angles for collimator: 60° and 120°
- Used sources: ^{22}Na , ^{26}Al , ^{57}Co , ^{60}Co and ^{88}Y



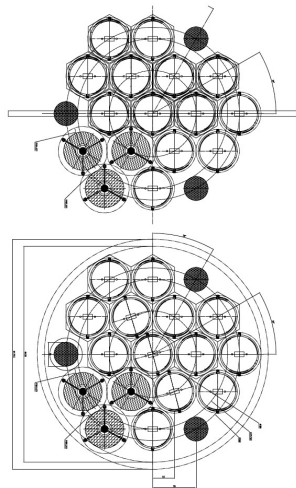
Position of the sources
GSTR-05-005

Results

- Best opening angle: 120°
- One run for each detector layer
- Possible sources: ^{22}Na , ^{26}Al or ^{60}Co

Boundary Conditions

- Position of the sources
- Maximum diameter of collimator: 50mm
- Minimum weight: $\sim 4\text{kg}$
- Possible collimator materials: copper or tungsten
- Same mounting system as detectors
- Park position at the neck of the vessel



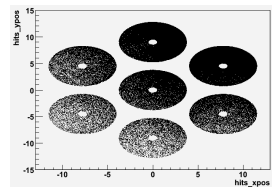
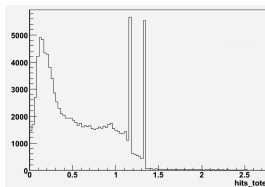
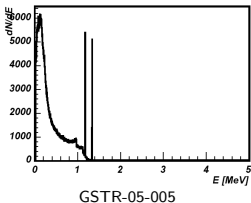
MCS: Goals

Figuring out for phase I & II separately:

- Sort and strength of sources
- Collimator material and geometry
- Frequency of runs
- Efficiency of energy deposition in the detector
- Efficiency of pulse shape analysis
- Influence of sources in parking position on measurements

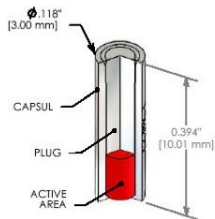
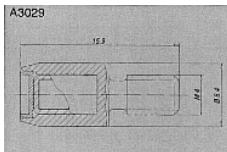
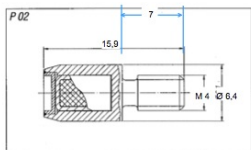
Current Status

- Installing MaGe
- Familiarize with MaGe and especially with parts relevant for Calibration simulations
- First comparisons with Munich results



γ Sources

- ^{228}Th and ^{60}Co sources, capsule A3029 (M4 thread), 100 kBq
- ^{57}Co capsule A.3224, and ^{137}Cs capsule P02, 74 kBq
- All encapsulated from Eckerd & Ziegler, IP Berlin



A3224-1

Teststand

Why?

- Verifying MCS for calibration

How?

- One Ge-detector (first unsegmented, later segmented)
- One calibration source
- Optical Ge dummies to simulate remaining detectors
- Everything in dewar with LN or LAr

