LENS Prototyping - Construction and Deployment of MicroLENS

Tristan D. Wright
Presented for the LENS Collaboration

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Lattice Design

- Lattice: low index of refraction (~1.34)
- Scintillator: higher index of refraction (~1.50)
- Highly segmented
- (3.25 in)$^3$
- (6 cells)$^3$
Materials

- Lattice
  - Teflon FEP
    - Index: \(\sim 1.34\)
    - Chemically resistant
  - Quartz
    - Structure
    - Index similar to that of linear alkyl benzene

- Vessel
  - Acrylic
Planes

- Support rod guide holes
  - Hypodermic needles
- PVC Template
- PMT holes
Ribbons

- Width: 3.25 inches
- 6 per layer
  - 2 long
  - 4 short
- Creased with specialized apparatus
Preparation

- Metal/PVC support frame
- Adjustable plane holders
- PVC work-plane
Layers and Lowering

- Plane placed with tabs down
- Ribbons woven between quartz rods
- Removable work-plane
- Progressive lowering
Vessel Construction

- Acrylic sides screwed together
- Sealed with acrylic cement
- Top lowered carefully
- Acrylic vessel lowered into PMT black box
Deployment

• Transported to Kimballton Underground Research Facility (KURF)* in specially designed foam box
• Currently Status
  – Awaiting filling and instrumenting

*Vogelaar
Thanks