PLEASE NOTE THAT COMMENTS REGARDING THE DESIGN, FROM JUNE 19TH MEETING, APPEAR IN THESE BOXES
Overview

- **Materials**
  - 316 stainless steel
  - Boron Nitride Grade COMBAT A ceramic solid from St. Gobain
  - Phosphor Bronze PB102 (custom insert)
- **Secure Screws**
  - Spot-welding SS wire on SS316 screws
  - Spot-welding SS wire on BN?
- **Diagnostic Design**
  - 4-channel array
  - Each channel separated by 7.5 degrees

**COMMENT 2**
*ISSUE:* IS GRADE OF BN CERAMIC APPROPRIATE?
*IDEA:* CONTACT MAST COLLEAGUES

**COMMENT 9**
*ISSUE:* MAST DESIGN REGULATIONS REGARDING DIAGNOSTICS
*IDEA:* CONTACT MAST COLLEAGUES
Total Assembled View

- MAST
- Reciprocating
- Probe

- Diagnostic

- Shield

- Diagnostic
- Without Shield

NOTE THAT SLIDE 14 HAS COMMENTS ON SHIELD
Total Exploded View

- Bronze insert
- Connector
- Base X 4
- Detector X 4
- Foil X 4
- Module
- Shield
Assembled View with Shield

CONNECTOR

SHIELD
Assembled View without Shield

MODULE

CONNECTOR
COMMENT 1
ISSUE: POSSIBLE HARDWARE COMPLICATIONS AT MAST, FOR EXAMPLE NEEDING TO REPLACE A MACHINE SCREW
IDEA: CHANGE ALL MEASUREMENTS AND HARDWARE TO METRIC
Module Exploded View with Bases
Module Dimensions

For shield attachment

For connector attachment

vent
Module

- **collimator hole**
- **vent**
- **detector and collimator hole**
- **secure base to hold detectors**
Module Angles

7.50°  7.50°  7.50°
COMMENT 8
ISSUE: DETECTOR INSULATION
IDEA: USE UHV (ULTRA HIGH VACUUM) APPROVED INSULATOR SUCH AS PEEK, VESPEL, MAYCOR, BN CERAMIC, OR TEFLON TO CREATE A THIN SLEEVE AROUND INDIVIDUAL DETECTORS; CONTACT MAST COLLEAGUES FOR MATERIAL APPROVAL
COMMENT 7
STATEMENT: THIS SHARP EDGE WILL BE ROUNDED TO REFLECT THE MAST MACHINE DRAWINGS

This part is replicated from MAST machine drawings to provide for attachment to reciprocating probe.
Shield Dimensions

Collimator diameter: 0.197”
Wall thickness: 0.25”
COMMENT 3
ISSUE: SECURE SCREWS TO BN SHIELD
IDEA: SPOTWELD SHIMSTOCK STRAP FROM SCREW HEAD TO CONNECTOR OR USE APPROVED UHV CERAMIC ADHESIVE

COMMENT 4
ISSUE: SCREWS NOT FLUSH WITH SURFACE
IDEA: RECESS SCREW HEAD SO IT IS FLUSH WITH THE SHIELD SURFACE

COMMENT 5
ISSUE: SHARP EDGES ON SHIELD
IDEA: ROUND ALL EDGES ON SHIELD (INCREASE SHIELD THICKNESS SO EDGES ARE STILL .25” IN THICKNESS)

COMMENT 6
ISSUE: IS ROUNDED RECTANGULAR SHAPE OKAY FOR SHIELD, OR DOES MAST PREFER CYLINDRICAL?
IDEA: CONTACT MAST COLLEAGUES
COMMENT 10

ISSUE: NEED ANOTHER WAY TO CHANGE COLLIMATOR SIZE, PREFERABLY ONLY REQUIRING THE REMOVAL OF THE BN SHIELD (UNLIKE METHOD SHOWN HERE)
IDEA: INSERT NEW COLLIMATOR CYLINDER THROUGH TOP OF MODULE AND PROVIDE FOR ATTACHMENT

New collimator size
Alternate Washer to Change Collimator Size

- New collimator size
- Hole for machine screw attachment to top of module