

electro **m**agnetic **c**alorimeter **mechanics**



- ✓ **BaBar EMC mechanics: recover existing information**
- ✓ **BaBar Vs SuperB EMC Barrel & Forward**
- ✓ **BaBar EMC shipment, storage**

➤ **Collect existing documents**

SuperB Integration Group (Fabrizio Raffaelli,...) is collecting in a repository all the information available: 3D-CAD, 2D-drawings, procedures, ...

An Integration engineering meeting is being scheduled

➤ **Recover missing information at SLAC**

EMC mechanics group needs a visit to SLAC to verify present status and to collect missing information.

Best if this is coordinated with the other EMC groups

An EMC group visit to SLAC is being scheduled

Indicate your availability on the doodle prepared by Riccardo

BaBar Vs SuperB emc mechanics

➤ Forward

- 1) re-use of BaBar structure (Csl crystals)

Structure re-qualification (not yet started)

- 2) new structure (LYSO, BGO crystals)

Design, structural analysis, experimental validation(in progress)

➤ Barrel

main intervention is on electronics

how this change affect mechanics and services?

(not yet started, need input from electronics group)

➤ Services

Cooling system

Calibration system

(not yet started)

BaBar Vs SuperB emc mechanics

➤ **Forward** new structure (LYSO, BGO crystals)

❖ **DESIGN**

- 1) Crystals spatial distribution (**in progress**)
- 2) Alveolar structure (to hold 5x5 crystals matrix) (**in progress**)
- 3) EMC main support structures (to hold alveola) (**not yet started**)

❖ **PROTO**

- 1) Proto1: alveolar structure 5x5 (**completed, used for test beam**)
- 2) Proto2 (**in progress**)
- 3) Main support structures (**not yet started**)

❖ **TEST**

Load test on Proto2 (**in progress**)

❖ **ANALYSIS**

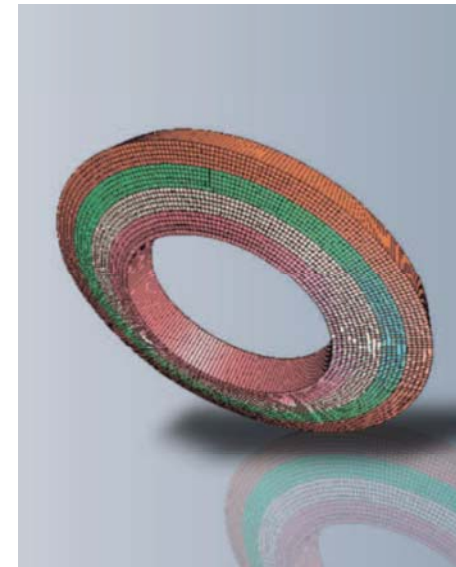
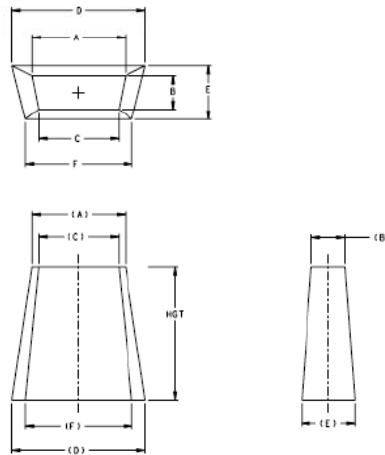
Structural analysis (**not yet started**)

EMC fwd new design: crystals spatial distribution

➤ **Present 3D CAD Model** is based on 2008 input

➤ **A new 3D CAD model** has to be developed based on up to date input from Stefano Germani (INFN Perugia)

Ring	A	B	C	D	E	F	
165 Xtals 33 Modules	1	20.65	22.03	19.88	22.65	24.43	21.79
	2	21.44	22.03	20.66	23.52	24.43	22.66
	3	22.23	22.03	21.45	24.39	24.43	23.53
180 Xtals 36 Modules	4	21.08	22.03	20.37	23.18	24.43	22.39
	5	21.80	22.03	21.09	23.98	24.43	23.19
	6	22.52	22.03	21.81	24.77	24.43	23.99
200 Xtals 40 Modules	7	20.89	22.03	20.25	23.02	24.43	22.31
	8	21.54	22.03	20.90	23.74	24.43	23.03
	9	22.19	22.03	21.55	24.46	24.43	23.75
235 Xtals 45 Modules	10	21.23	22.03	20.64	23.44	24.43	22.78
	11	21.84	22.03	21.24	24.11	24.43	23.45
	12	22.44	22.03	21.85	24.78	24.43	24.12
265 Xtals 53 Modules	13	21.06	22.03	20.52	23.29	24.43	22.68
	14	21.62	22.03	21.07	23.90	24.43	23.30
	15	22.17	22.03	21.63	24.51	24.43	23.91
250 Xtals 50 Modules	16	21.34	22.03	20.83	23.63	24.43	23.06
	17	21.86	22.03	21.35	24.21	24.43	23.64
	18	22.38	22.03	21.87	24.78	24.43	24.21
270 Xtals 54 Modules	19	21.19	22.03	20.72	23.48	24.43	22.96
	20	21.67	22.03	21.20	24.02	24.43	23.49
	21	22.15	22.03	21.68	24.55	24.43	24.02

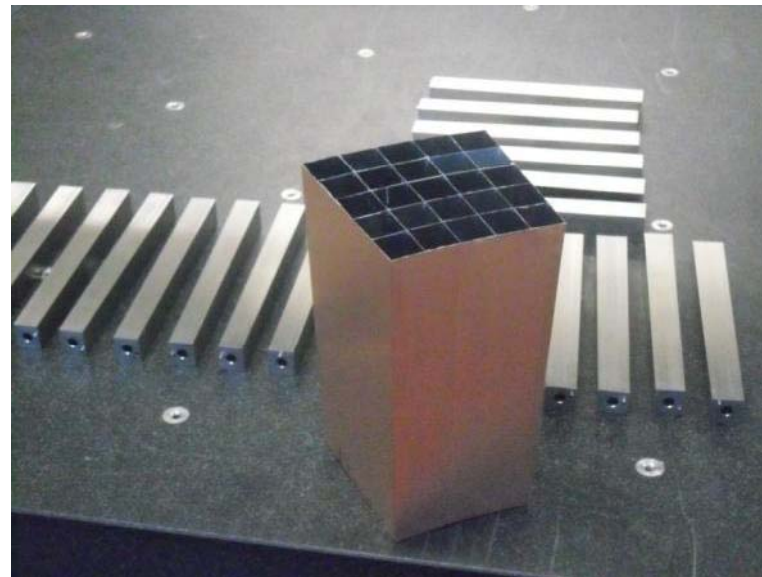


EMC fwd new design: Proto2

➤ Production

Proto 2 production completed by RIBAComposites .
Module delivered to INFN Perugia
(A.Piluso, 8th September 2011)

Proto2 is a copy of Proto1 to be used for mechanical test

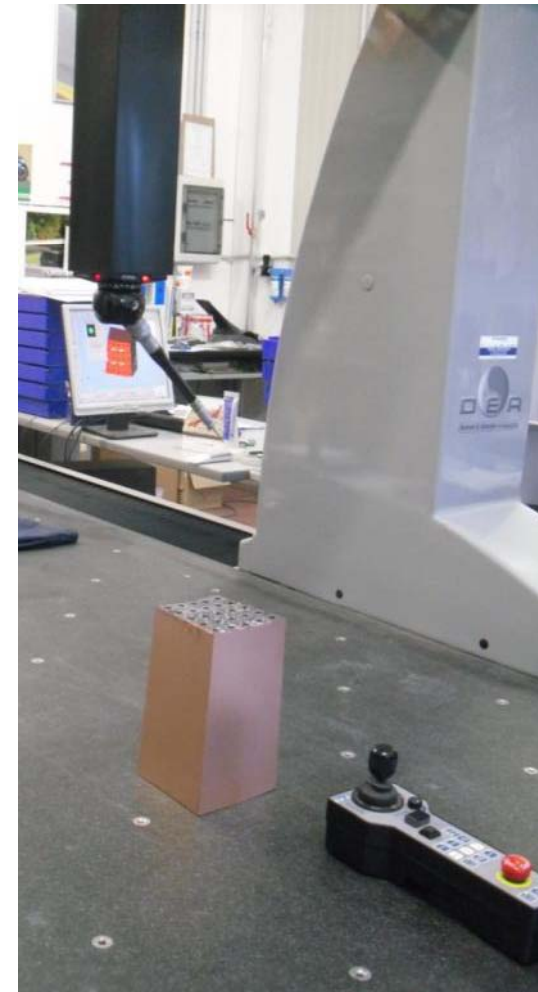
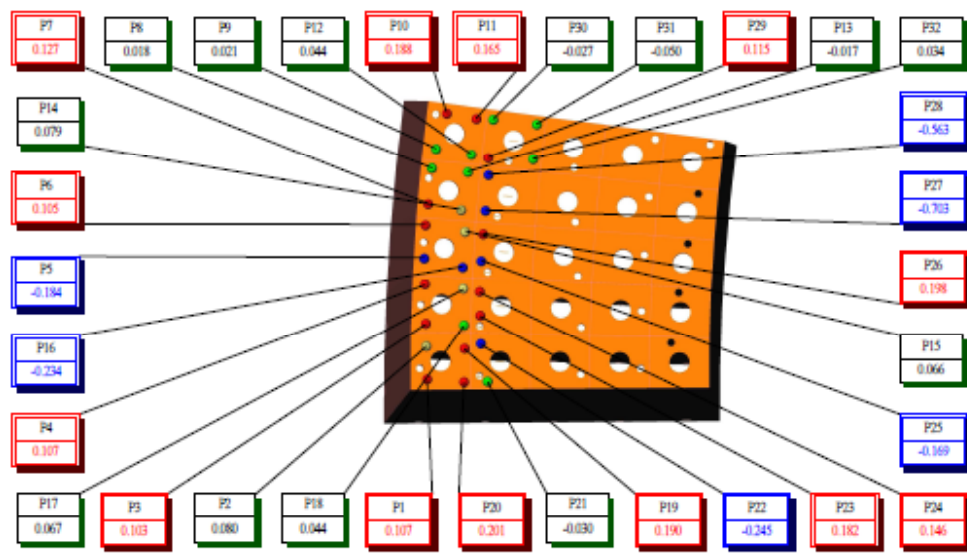


EMC fwd new design: Proto2

➤ Inspection

Visual and Dimensional inspection **this week** at INFN Perugia to validate production process.

Dimensional survey of the Proto2 to be compared with the previous survey on Proto1 (**in progress**)



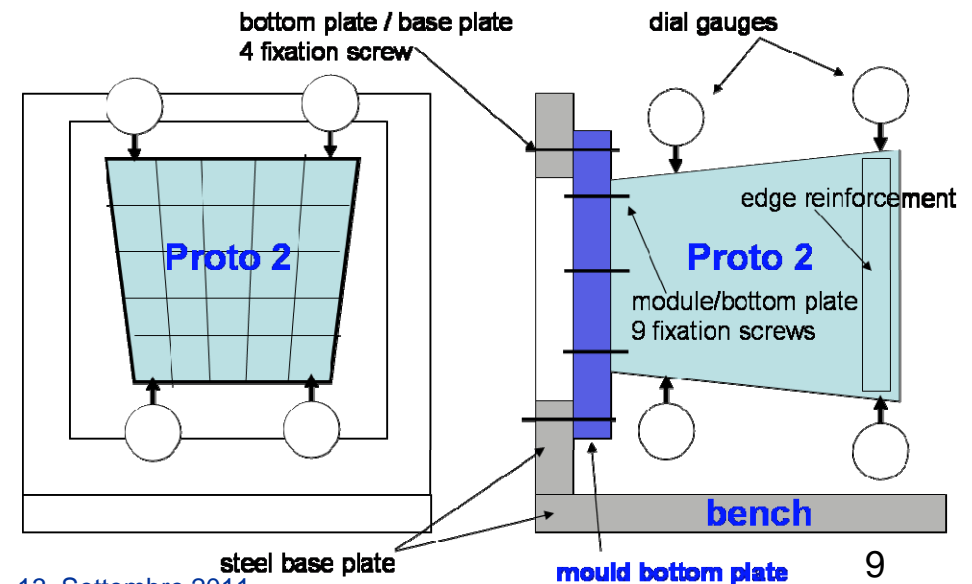
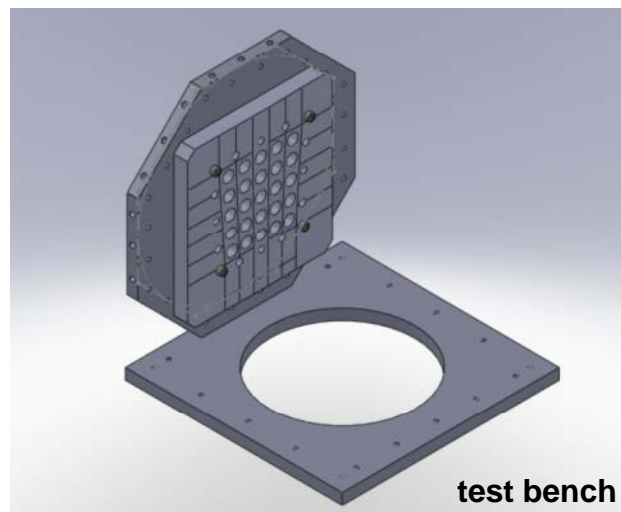
EMC fwd new design: Proto2

➤ Load test

A load test campaign will be performed for module mechanical characterization.

Test will be performed at Dip. di Fisica e Ingegneria dei Materiali e del Territorio, Università Politecnica delle Marche, under Fabrizio Davì, Daniele Rinaldi.

Test bench production, test procedures, test schedule will be defined in a meeting at INFN Perugia next week (tentative)



BaBar emc shipment, storage



➤ Shipment

A transport strategy shall be defined within SuperB collaboration (under discussion with Integration Group)

❖ *HOW*

EMC to define the requirements for the shipment of the crystals/structure: shipping frame, dumping systems, thermal control, ...

❖ *WHEN*

EMC to define timing request for the shipment

EMC to verify if any constraint /limitation on controlled storage at SLAC could affect shipment time

❖ *WHERE*

EMC to define storage area location and dimensions requirements

Forward and barrel calorimeter will go through several processing phases from the reception to the final integration.

An hardware flow and processes sequence should be defined and optimized to minimize crystal/hardware transport, handling and to avoid duplication of jig&tools

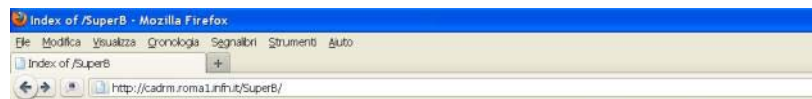
EMC technical meeting to discuss these aspects is suggested

emc-mec information available @











While waiting for a SuperB repository area all the information on EMC mechanics is being stored at

<http://cadrn.roma1.infn.it/SuperB>



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 Parent Directory		-	
 DESIGN_bb/	21-Jun-2011 14:20	-	
 DESIGN_sb/	21-Jun-2011 14:20	-	
 Documents/	22-Jun-2011 15:39	-	
 ref_BABAR/	21-Jun-2011 14:20	-	
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 ref_L3/	21-Jun-2011 14:20	-	
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