

FOS4HEP activities at CERN

S. Buontempo

(on behalf of FOS4HEP group)

Outline

- FOS @ CERN
- FOS applications in CMS
- R&Ds going on
- FOS4HEP project
- more R&Ds in “waiting list”

FOS @CERN

- All activities triggered by a technical seminar in CMS by G. Breglio and M. Giordano in April 2009
- Defined and started in July 2009 a plan of test measurements in CMS detector for both T and strain
- List of additional field of interest collected: R&D program defined and started in 2010
- FOS4HEP(1) project submitted in dec 2009
- FOS seminar to Marta's team by S. Buontempo in July 2010: test measurements started
- FOS4HEP (2) submitted in Jan 2011

FOS in CMS

- 20 T FOS in CMS tracker bulkhead (fig4)
- 20 strain FOS in CMS HF structure (fig 2,3)
- 60 T sensors in CMS cavern

See Zoltan talk

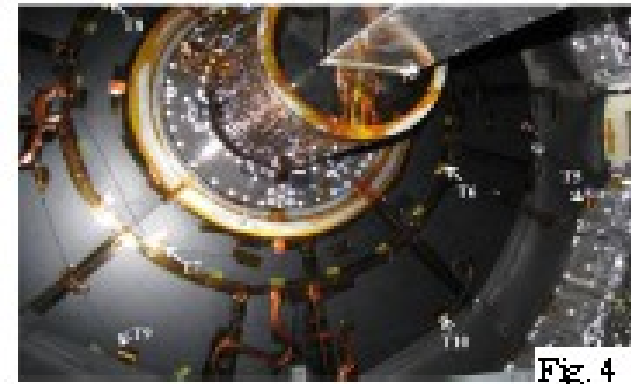
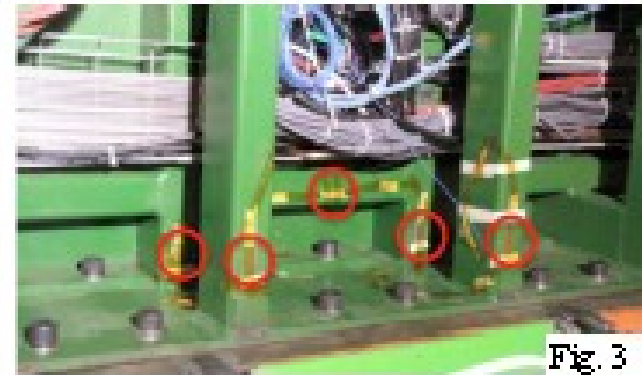


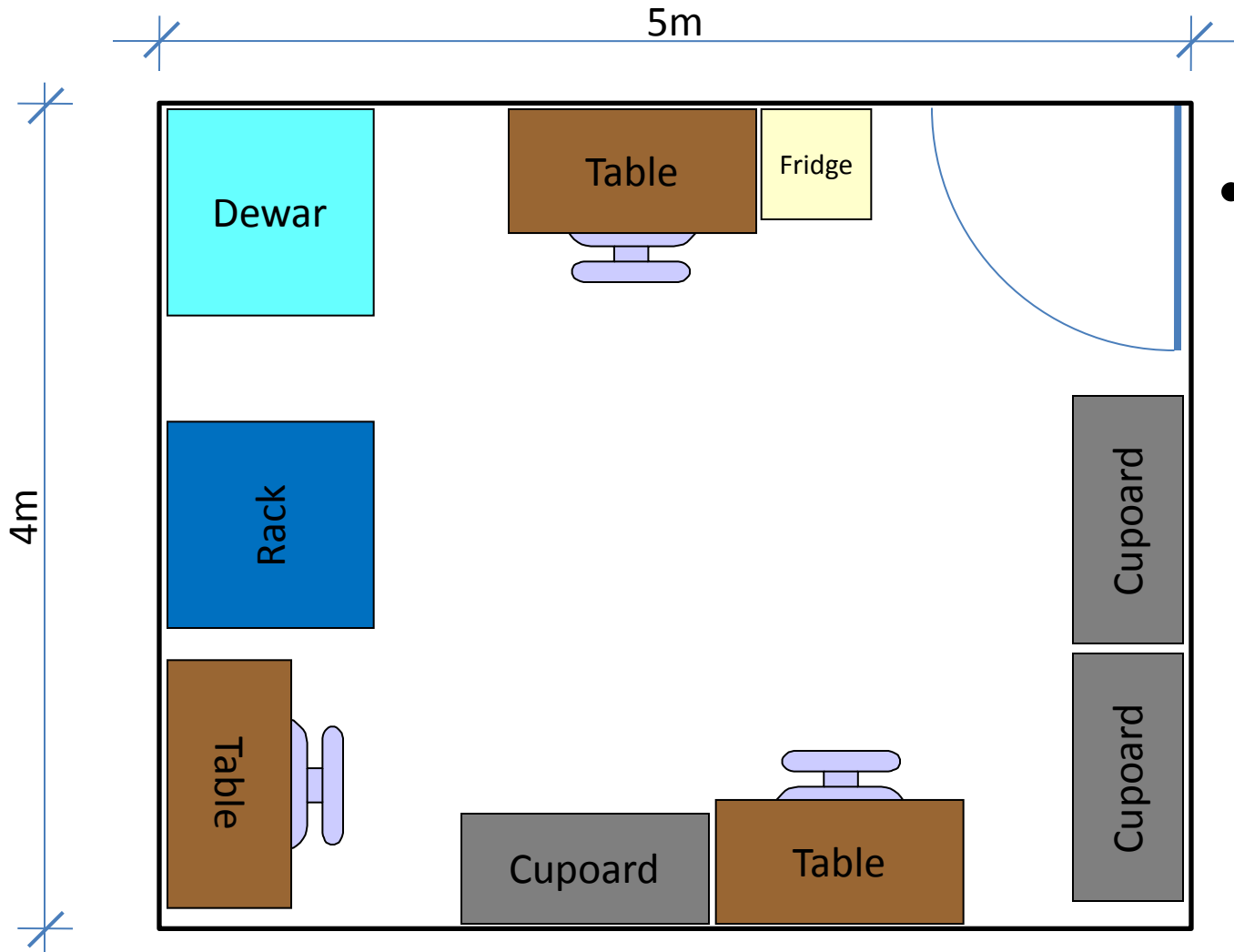
Fig. 2, 3, 4 First FOS integration in CMS Detector at CERN in 2009-2010

R&Ds going on

- CRDC & Optosmart teams: synergy of know-hows
- Precise Relative Humidity up to -20C T (CMS inner tracker environment) see P. Petagna talk
- B field in different ranges: 0-0.5T (fringe field) and 3-5T (field map), see A. Gaddi talk
- Cryogenic T and strain measurements, see M. Bajko talk

For all of them a precise plan of activities and applications defined and being implemented (rad hardness campaign included)

SX5 FOS lab



- New FOS lab equipped in P5 for FOS calibration and R&D tests

FOS4HEP project

- idea is to profit of any funding call to increase the strength of the FOS activities at CERN and in involved group sites
- First proposal submitted to EU-PEOPLE-MC call in dec 2009. Final score was 76/100, over the threshold of 70/100, but not selected for negotiation phase.
- Second proposal edited with help of PNO external consultancy and submitted in EU-PEOPLE-MC call in jan 2011. Result expected by May 2011.

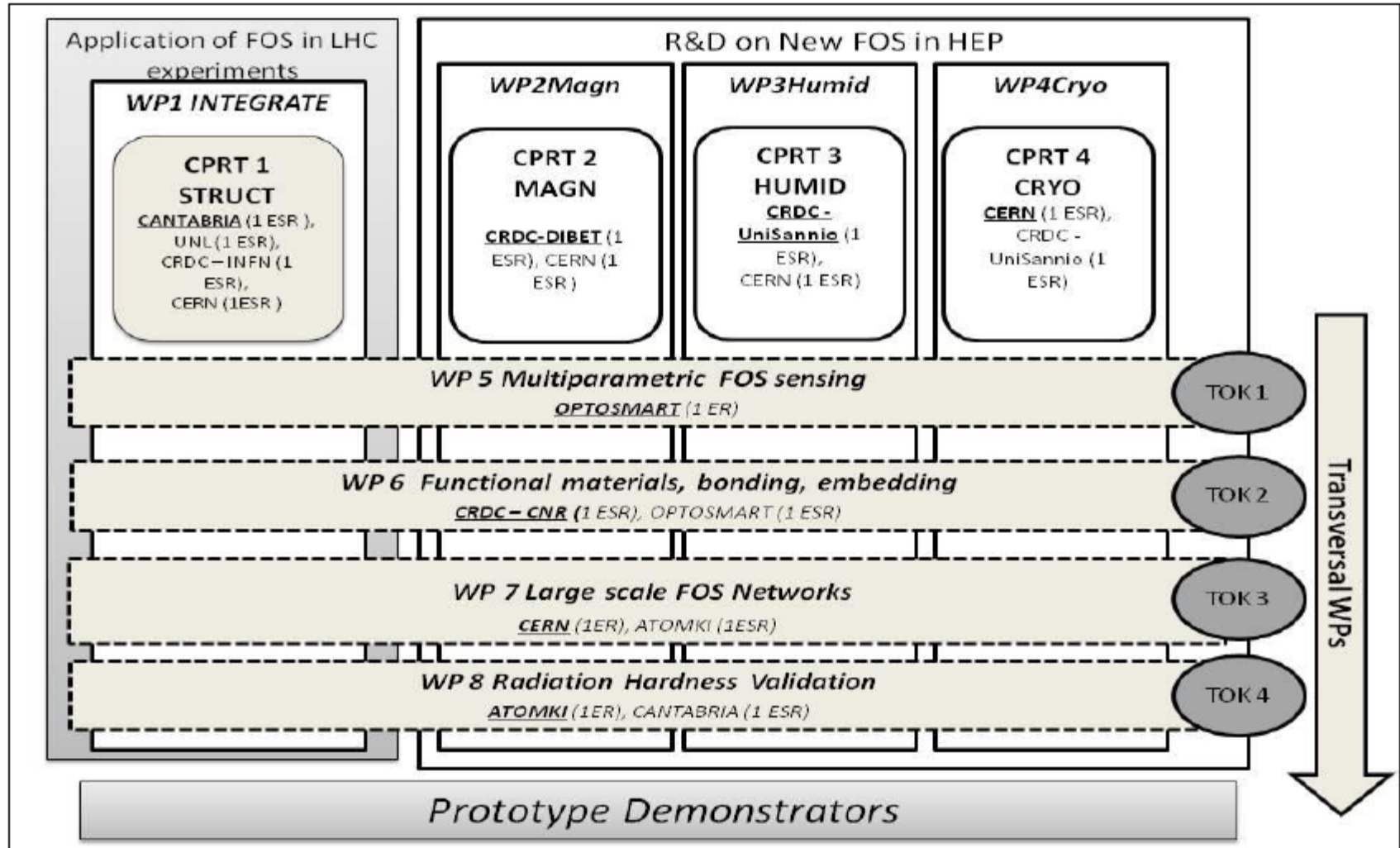
FOS4HEP

Participants

- 3 additional associated partners (Ansaldo SC, Babcock Noell, AMS techn.) not included due to late letter of commitment

All Participants	Private Sector ¹	Country	Legal Entity Name	Department /Division/ Laboratory	Scientist-in-charge
<i>Full Network Partners (beneficiaries)</i>					
1. CRDC		Italy	Centro Regionale di Competenza Nuove Tecnologie	DIBET, UniSannio, CNR, INFN	S. Buontempo
2. CANTABRIA		Spain	Universidad de Cantabria	IFCA	A. Lopez Virto
3. ATOMKI		Hungary	Institute of Nuclear Research of the Hungarian Academy of Sciences	Experimental Nuclear Physics	J. Mohar
4. UNL		Portugal	Universidade Nova de Lisboa	Department of Physics	P. Vieira
5. OptoSmart	v	Italy	OptoSmart s.r.l	R&D	A. S. Giordano
6. CERN		Switzerland	European Organization for Nuclear Research	PH Department	P. Petagna
<i>Associated Partners</i>					
A.1 CNM-IBM		Spain	Centro Nacional de Microelectronica		Giulio Pellegrini
A.2 CNA		Spain	Centro Nacional de Aceleradores		J. Garcia
A.3 INTA		Spain	Instituto Nacional de Técnica Aeronáutica		José Gabriel Carrión Martín
A4. SCK-CEN		Belgium	SCK-CEN		A. Gusarov
A5. MTA- Cebra	v	Italy	M.T.A. Cebra		P. Iaccarino
A6. ELANTAS Camattini SpA	v	Italy	ELANTAS		Paola Gherardi
A7. TEMAI Ingenieros S.A.	v	Spain	TEMAI		Luis Bussion

FOS4HEP architecture



FOS4HEP Fellows

Early-stage and experienced researchers to be financed by the grant agreement					
Network Team	Early-Stage Researchers (ESR) (person-months) (A)		Experienced Researchers (ER) (person-months) (B)		Total (A+B)
	Fellow Months	Number of Researcher	Fellow Months	Number of Researcher	
1. CRDC	168	5			168
3. CANTABRIA	72	2			72
5. ATOMKI	36	1	24	1	60
4. UNL	36	1			36
5. Op to Smart	24	1	24	1	48
6. CERN	144	4	24	1	168
(Sub-)total	480	14	72	3	552

More R&Ds in “waiting list”

- Gas leak measurements: request from R. Guida to start some prototyping activities in his lab
- Dosimetry: very preliminary ideas, still to be defined the particles and ranges
- Any further outcome/idea from present WS ?