



Discussion-conclusions

- Inventory
- Means, methods and conditions
- Definition of tests for intercomparison
- Collaboration

Inventory of HLS sensors (1)

Technology	Model	Lab	Res.	Drift	Comments
Capacitive	Fogale	CERN	< 1 μ m	< 3 μ m/Mth	Fogale electronics
		ESRF (2 nd gen)		1.7 μ m/2mths	
		SOLEIL (4 th gen)		10 μ m/1year	
		KEK			
		FERMI			
	Tevatron	FERMI	5 μ m		
	BINP	FERMI, SLAC	1 μ m	2 μ m/mth	
	Edi Meier	PSI	< 2 μ m		
	Takeda	KEK			



Inventory of HLS sensors (2)

Technology	Model	Lab	Res.	Drift	Comments
Ultrasonic	DESY BINP	DESY FERMI, SLAC	<1 μ m		Transducer corrosion, silica reference
CCD		BEPCII, SSRF, NSRF			Contact measurement

Inventory of WPS sensors

Technology	Model	Lab	Res.	Drift	Comments
Capacitive	Fogale	CERN KEK DESY ESRF	< 1 μ m	< 3 μ m/Mth	
Inductive	WEI	SLAC	< 1 μ m		
RF inductive	Peters	SLAC	< 1 μ m	< 0.1 μ m/day	
Inductive	Sugahara	KEK			A lot of noise
CCD	OSI	CERN	< 1 μ m		Under development
	Desy	Desy			Under development



Means, methods and conditions

Technology	Model	Lab	Means
Capacitive HLS	Fogale	CERN	Automated calibration benches, determination of 0, interchangeability, reception test (warm up, 2 days stability), irradiation tests
		ESRF	Calibration by interferometry
		SOLEIL	Gauge for 0 and gain
		KEK	
		FERMI	
	Tevatron	FERMI	Stable tunnels for long term measurements
BINP	FERMI, SLAC	Comparison tests on going Automated calibration benches	
Edi Meier	PSI		
Takeda	KEK		



Mean, methods and conditions(2)

Technology	Model	Lab	Means
Ultrasonic HLS	DESY	DESY	Calibration with crystal reference
	BINP	FERMI, SLAC	CMM, with stainless steel reference
CCD HLS		BEPCII, SSRF, NSRF	Repeatability test



Means, methods and conditions

Technology	Model	Lab	Means
Capacitive WPS	Fogale	CERN KEK DESY	long term stability, interchangeability, irradiation, reception test (warm up and 2 days stability)
Inductive WPS	WEI	SLAC	
RF inductive WPS	Peters Sugahara	SLAC KEK	
CCD WPS	OSI DESY	CERN DESY	CMM



Applications

- HLS

- Mostly monitoring and control of movement
- Absolute measurement for Soleil
- Active realignment (LCLS)

- WPS

- Monitoring
- Absolute with the « wire finder » at DESY ???



Tests to be performed on sensors

- HLS

- Most of the tests are done but need to be performed in the same way
- Long term stability
=> Uncertainty of the measurements. How to define it ?
- Radiation fluences
- Magnetic fields



Intercomparison of HLS

1. On a same marble, all types of sensors connected to a water network and compare the variations of readings w.r.t. mean plane
2. On two marbles distant from 100 m same experiment, all sensors on the same network



Tests to be performed on sensors

■ WPS

- Long term stability
- Find new wires
- Better knowledge of the wires (creeping effect,..)
- Calibration and linearity of WPS
- Intercomparison ??



Collaborations

- Several level of collaboration are possible
 - Loan of material
 - Set up of facility
 - Data Analysis
 - ...
- Who is interested and by what ?