



World-Wide Fundamental Power Coupler meeting #5

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Topics for discussion
Conclusion

List of invitees for WWFPC #6 meeting in 2020



	CERN	Eric Montesinos
	DESY	Denis Kostin
	KEK	Yasuchika Yamamoto
	RIKEN	Kazutaka Ozeki
	IHEP	Tong ming Huang
	LAL	Walid Kaabi
	IPNO	Emmanuel Rampoux
	BNL	Wencan Xu
	IBS	Ilkyoung Shin
	CEA	Guillaume Devanz
	Cornell	Vadim Veshcherevich
	Jefferson Lab	Mircea Stirbet
	ORNL	Yoon Kang
	FNAL	Sergey Kazakov
	SLAC	Chris Adolphsen
	HZB	Emmy Sharples
	IMP	Tiancai Jiang

WWFPC #6 meeting date

Still hosted at CERN

Still yearly

Still June

Experts only

One representative only per lab

Mandatory to be present the entire two days

No remote participation

Discussion oriented, no time limitation

On invitation only (please provide me with names to be added to the list)



Topics for discussion

Coating

Description of process

CERN now doing Gold + Copper

Acceptance criteria

10 W / litre ultrasonic + Ticopur 5 litres / 200 litres

Thermal shock liquid nitrogen [(2 minutes) + boiling water (2 minutes)] x 5

Ti coating

Color code to validate with respect to a first qualified sample

Reason for blue glow (coating or ceramic ?)

Topics for discussion

Tests

Need vacuum gauge for series production FPC

CERN, DESY, ORNL, used as main interlock system for FPC in LHC

Biasing

BNL, DESY, HZB, Riken do not use DC bias, prefer a good conditioning, afraid of gas accumulation (use multipacting simulation tool in order to make a multipacting free coupler)

SNS, IHEP bias 'when needed'

CERN, IMP, IHEP bias after systematic conditioning

Fermi bias to avoid conditioning

Used to condition by applying wrong level

Amplifiers for tests

Proposal of resonator by Tiancan to be tested

Proposal of resonator by Sergey

Topics for discussion

Operation

Vacuum interlock

BNL	2.0 x 10 ⁻⁷ Torr
CERN	3.5 x 10 ⁻⁷ Torr
DESY, HZB	8.0 x 10 ⁻⁷ Torr
ORNL, FERMI, IHEP, IMP, Riken	1.0 x 10 ⁻⁶ Torr

Conditioning

DESY, IMP, HZB	only after a venting or a thermal cycle
CERN, IHEP, ORNL, BNL	conditioning cycle every technical stop (~ every 10 weeks)
FERMI	No conditioning, direct DC biasing

Windows seen by the beam ? no concerns ?

Depends of the distance to the beam ?
Past experiences not ok, SNS ok

Topics for discussion

Transport

Simulations (shock + vibration)

What are the values you have in specifications

Fermi ~ 1 g

ORNL (Yoon will provide numbers)

DESY 1.5 g but 0.5 g achieved (shock)

BNL (Wencan will provide numbers)

Out-loading with specific tool (above mentioned must be applied all along)

Measurement of single FPC on 'storage chamber' before and after shipment

Check the signature before and after broadband

Specific short circuit at the antenna



Topics for discussion

Statistics

List all couplers operated your accelerators

Can you please send me the list of FPC (past, present, future) including F_c , P_{max} , duty cycle, quantity

Degradation of characteristic over time of operation

Can you please provide a short comment in case of identified trouble

Topics for discussion

Vendors

List all vendors you trust

Can you please send me the list of Vendors you would like to be known

Thank you again for being here these two days !

