# **MDI Input for WBS**

Karsten Buesser WG2-BDS Meeting 12.05.2021







### MDI in WG3

### **IDT-WG3 - Physics and Detectors**

- detector studies, encourage new ideas for experimentations at the ILC.
- Chair: H. Murayama, Deputies: J. List, C. Vallee

### Working Groups

- Physics Potential and Opportunities
- Detector and Technology R&D
- Software and Computing
- Machine-Detector Interface  $\bullet$ 
  - Conveners: R. Poeschl, Y. Sugimoto, KB
  - design.

• The Working Group 3 is in charge of the physics and detector activities. WG3 aims to raise awareness and interest in the ILC development and expand the community, support newcomers to get involved in physics and

• Identify all machine/detector interface issues to be addressed by the Prelab to finalize the ILC design (e.g. interaction campus, experimental hall, interaction regions, operating scenario), through a forum of exchange of information between machine and detector requirements, and study their implications for the experiments

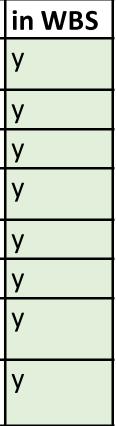






## **Topics with direct impact on physics**

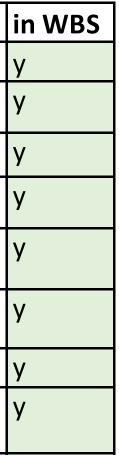
ltem	Deliverables	Related area and technical systems	Comment	li
Polarimeters	Performance specification; Costing	BDS(MDI)/Instrumentation/ADI/M	Physics instrumentation	1
Energy spectrometers	Performance specification; Costing	<b>BDS(MDI)</b> /Instrumentation/ADI/M	Physics instrumentation	,
System design of Muon collimation	System design	BDS/MDI/ADI	Physics impact; backgrounds	,
L* and crossing angle	System design	ADI/CFS/MDI/BDS	Physics impact; detector design	
Collimation and detector background evaluation (incl. Muon)	Performance specification	BDS/MDI/ADI	Physics impact; backgrounds	ľ
Radiation loss evaluation in dump line / backscattering from dump	Performance specification; System design	BDS/ADI/CFS	Physics impact; backgrounds	•
MPS collimators	System design; Performance specification; Costing	BDS/CFS/MDI	Physics impact; backgrounds	
Muon spoiler and muon wall	Component design; Costing; Cooling water estimation	BDS/Magnet/MDI	Physics impact; backgrounds	`





## **Topics with impact on detector design**

ltem	Deliverables	Related area and technical systems	Comment	i
Anti-DID (detector solenoid)	Component design	<b>BDS(MDI)</b> /Scmagnet/MDI	Detector design	У
System design of push-pull scheme	System design	BDS(MDI)/CFS/ADI/MDI	Detector design	У
System design of Packman	System design	BDS(MDI)/CFS/ADI/MDI	Detector design	У
QF1 SC magnet and cryostat package	Component design; Costing; Power estimation	SCmagnet/MDI/BDS	Detector design	У
He transfer line ( from cryogenics to service cryostat)	Component design; Costing; Power estimation	SCmagnet/MDI/BDS	Detector design	У
Power supplies, and cabling for SC magnet	Costing; Power, cooling water estimation	SCmagnet/BDS	Detector design	У
Magnet support	System design; Costing	Alignment/Magnet/BDS	Detector design (QD0/QF1)	y
Chamber support	System design; Performance specification; Costing	Alignmrnt/Vacuum/BDS	Detector design (IR area)	У





# CFS topics with impact on detector design, assembly, maintenance

Item	Deliverables	Related area and technical systems	Comment	in WBS
Site planning: IP Campus	Requirements from detectors, area plan	CFS/MDI/Campus Planners	Detector design; assembly	n
System Design of Gantry Crane	System design; Costing	CFS/MDI	Surface area design; detector assembly	n
Design of Assembly Hall	Optimisation	CFS/MDI/Campus Planners	Surface area design; detector assembly and maintenance	n
Requirements for Pre-assembly building	Requirements, area plan	CFS/MDI/Campus Planners	Surface area design; detector assembly and maintenance	n
Design of unterground detector hall	Optimisation	CFS/MDI/Campus Planners	Underground area design; detector assembly and maintenance	n
Site planning: Main Campus	Requirments from physics/detector community	CFS/MDI/Campus Planners	Physics/detector users	n



## **Topics with indirect impact on MDI**

ltem	Deliverables	Related area and technical systems	Comment	in WBS
Alignment for two beamlines around detector area	System design	Alignment/MDI/CFS/BDS	IR design	У
Optics design for QD0 package design (for WP-16)	Beam optics design	BDS/SC magnet/MDI		У
Optics design for QF1 package design (for WP-16)	Beam optics design	BDS/SC magnet/MDI		У
Optics design for Crab cavity (for WP-3)	Beam optics design	BDS/SCRF/MDI/ADI		У
Laser station for polarimeters and laser wire monitors	System design; Costing; Power, cooling water	Instrumentation/CFS/BDS/MDI		У



## Summary

### MDI Group is established in WG3 (Physics/Detectors)

overlap with WG2

#### **Group structure**

- Task forces
  - IP Campus and Detector Hall design
    - T. Markiewicz, M. Stanitzki, Y. Sugimoto, KB
  - BDS impact on physics (L\*, backgrounds...)
    - R. Poeschl (convener)

#### Resources

- very limited resources do not allow to proceed with all identified topics
- work plan for pre-lab and EDR phase has not been established yet

