Machine-Detector Interface
Task Force or Working Team

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- **The Mandate from the SC-IAC**
- **The Plan – a task force or working team**

  across accelerator, detector and simulation groups

- **We need to define: goals, constituents, plan & schedule**
- **Discussion**

Goals – to specify, fully adopting the IAC recommendations:

Recommendation 13
Set up a high-level executive working group between accelerator and detector teams to define a workable baseline scenario for the machine-detector-interface area.

Recommendation 11
Build international and domestic collaborations in several critical areas, e.g.,
MDI, SC-RF, polarization, …..

Recommendation 8
Define the new parameters as a "new baseline", to make all systems consistent with them…..

Recommendation 9
Clarify the timetable with appropriate milestones, including prototyping…..

Recommendation 15

Engage engineering expertise to assess various engineering aspects of the detector options under

Study …., Reinforce detector studies in the forward region at the interface of the accelerator….. Optimize the luminosity measurement ……, compatible with expected statistical errors on the physics, through optimal design, integration and alignment of LumiCal. Perform advanced engineering studies on the overall design of the complex forward MDI region, taking all constraints into account….. Taking the impact on the beams and the CEPC luminosity performance into account. Preferably make a final choice of the recommended magnetic field for both CEPC detectors at the earliest possible time.

Goals – to specify, fully adopting the IAC recommendations:

Recommendation 15

Study the impact of the choice of the solenoid field (2T or 3T) at all foreseen CEPC center-of-mass energies. Draw conclusions on the detector design and performance (in particular the TPC), Continue to pursue studies of the solenoid yoke in view of magnetic stray fields and their influence on the booster beams and on other surrounding equipment.

Constituents -

The MDI Task Force

- Background simulation – Hongbo Zhu, Haoyu Shi

- Silicon vertex detector – Zhijun Liang,

- LumCal – Suen Hou, Chia-Ming Kuo, Ivanka Bozovic, Ivan, Smiljanic, Cheng-Wei Shih, Peilian Liu

- Accelerator – Sha Bai, Chenghui Yu, Yudong Liu, Jie Gao

- MDI mechanics – Haijing Wang,

- SC magnet – Yingshun Zhu,

- Detector mechanical structure – Quan Ji,

- Detector solenoid magnet – Zian Zhu, Feipeng Ning

- General – Xinchou Lou, Jianchun Wang

Do we miss any part or anyone？

We will need to strengthen the team

Plan

take a "baseline" (even if it is not close to final) to get started;

get organized and start with the simulation, ask & answer questions

work towards the goals; several iterations and optimizations

regular meetings, workshops where major contributors are in one place

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Schedule

a workshop in early summer, followed by fall, & prior to CEPC workshop?

draft a schedule according to overall CEPC roadmap

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