



DRD1
Gaseous Detector Technologies



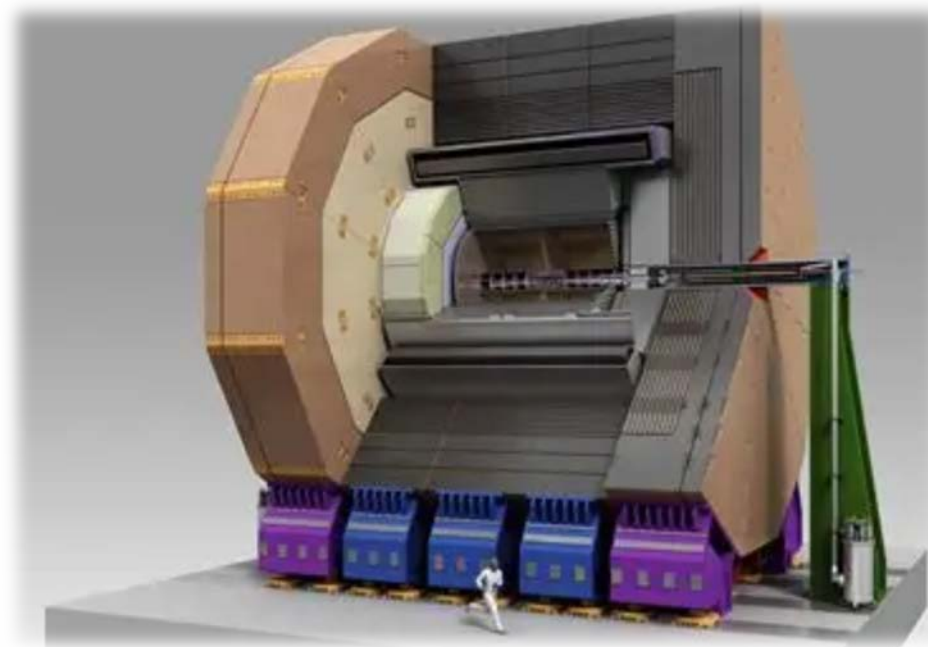
Some updated information

Huirong Qi

LCTPC WP meeting, 18 September 2026

How Does AGORA Proposal Go?

- In CEPC community meeting:
 - Someone noted, with the FCC-ee decision expected in 2028, the detector concept down-selection underway, IHEP must establish the AGORA detector's technical advancement and feasibility before 2028 to compete for selection as the baseline detector concept.



A detector for the next CERN flagship project: ILD

<https://agenda.linearcollider.org/event/11033/>

FCC 15/09/2026 ILD meeting at CERN Giulia Nigrelli 1

REPORT ON SYNCHROTRON RADIATION IN FCC-EE

G. Nigrelli^{1,2,3} on behalf of the SR Task Force

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Many thanks for the inputs and fruitful discussions to M. Ady, H. Bartosik, M. Boscolo, G. Broggi, R. Bruce, H. Burkhardt, D. Calzolari, C. Carli, G. De Gois Saretti, J. Eyeamns, A. Frasca, C. Garion, A. Ilg, D. Jeans, M. Jebramcik, A. Lechner, G. Lerner, K. Oide, F. Palla, P. Raimondi, S. Redaelli, J. T. Seeman, M. Sullivan, F. Zimmermann.

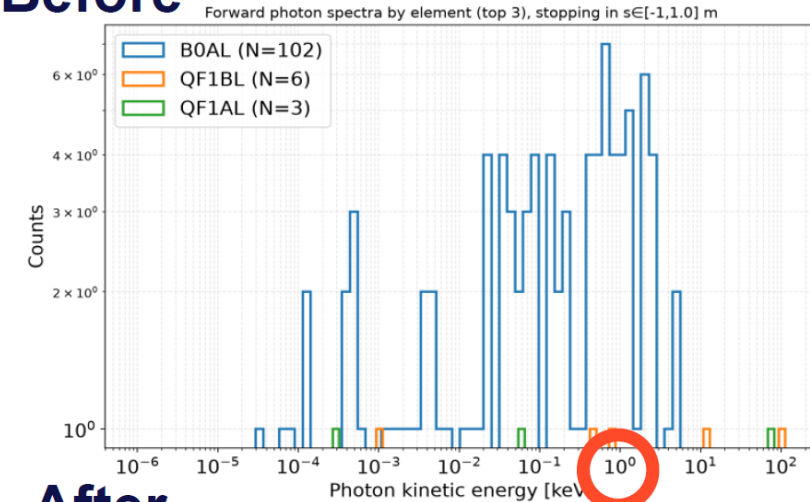
Background implication

- SR background from core should be significantly **suppressed**
 - **~2 orders of magnitude reduction in power** → lower hit rate in the detector
- **Energy spectrum of SR photons at IP is significantly different**
 - shifted by about **3 orders of magnitude** to lower energies
- With energy dependent sampling, **majority of photons with energies $\mathcal{O}(eV)$**
 - None of this will make it to the detector → **SR background from core expected to be fully suppressed!**

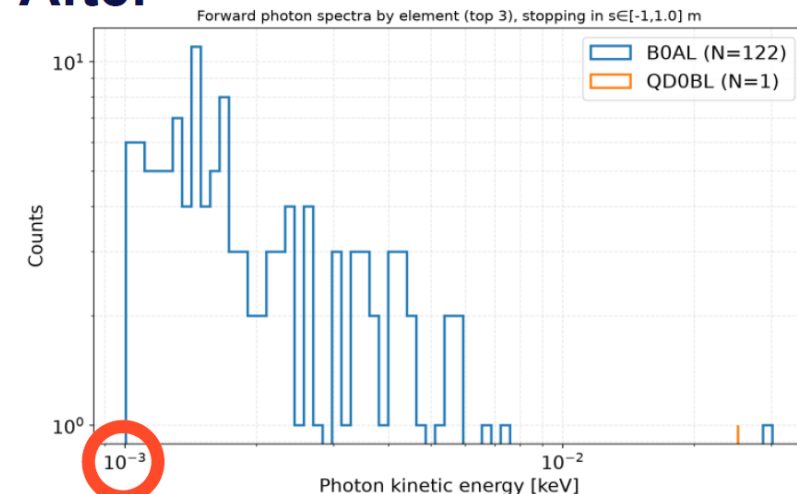
Good news for the background!

BUT results still need to be checked including xray-reflection

Before



After



Conclusions

- Identified Geant4's SR angular sampling as source of discrepancies
 - **BDSIM SR loss maps now agree with FLUKA and SYNRAD**
- **Beam halo at the FFQs confirmed as the dominant source of SR background at the IP**
 - Halo SR at IP **~2 orders of magnitude above core** contribution
- Possible mitigation strategies:
 - **Alternative Final Doublet** (increased QF1-QD0 separation): **factor 10 reduction of SR from halo for direct hits in the central chamber**, with no effect on SR from the core
 - **Additional masking near the IP**: SR at IP mostly intercepted; **halo contribution reduced by at least a factor 100**
- SR background at the IP can be significantly reduced with the proposed mitigations
 - **Very promising results for the vertex detectors!**

<https://indico.ihep.ac.cn/event/28911/>

The 2026 International Workshop on the High Energy Circular Electron Positron Collider

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Asia/Shanghai timezone

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	Thursday 22nd	Friday 23rd	Saturday 24th	Sunday 25th	Monday 26th
9:00-10:30	Plenary	Higgs SiDet Accelerator Industry	BSM Integration Accelerator Offline	EW & tt Gas Det Accelerator PID	EW & tt TDAQ Accelerator PID
10:30-11:00	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
11:00-12:30	Plenary	QCD Calorimetry Accelerator Industry	Flavor Future Exp Accelerator Electronics	Poster Session	EW & tt TDAQ Accelerator PID
12:30-14:00	Lunch break	Lunch break	Lunch break	Lunch break	Lunch break
14:00-15:30	Higgs SiDet Accelerator Industry	QCD Calorimetry Accelerator Sustainabil	Flavor Future Exp MDI + Acc Offline	Excursion	Plenary
15:30-16:00	Coffee break	Coffee break	Coffee break		Coffee break
16:00-18:00	Higgs SiDet Accelerator Industry	BSM Calorimetry Accelerator AI & ML	Flavor Gas Det MDI + Acc Electronics		Plenary
	Reception 19:00 - 21:00	Public Lecture 19:00 - 21:00	Banquet 18:30 - 21:00		

For assistance, please contact our support email address cepcws2026@ihep.ac.cn. All payments will be processed on-site, and any official communications will be sent exclusively from this address.

Many thanks!