

# Active Targets Summary Table

		comment/description	Critical items for R&D	Expected Time
DET-ATa0	A	<b>new field cage at LNL</b>	<b>fully funded by CSN3</b>	<b>2023-2024</b>
		mechanical design and construction		2023
		design, simulation, and implementation of an electrostatic mask		2024
DET-ATa1	A	<b>new pad plane at LNL</b>	<b>fully funded by CSN3</b>	<b>2023-2024</b>
		design and construction from CERN PCB workshop	long waiting list	
DET-ATa2	A	<b>installation of a "resident AT" at SPES</b>	<b>beam line completion up to experiment location</b>	<b>2023-2024</b>
		design of support mechanics (gas chamber and front-end electronics support)		
DET-ATb0	B	<b>pure-gas mult. and read-out</b>	<b>to be realized from scratch following AT-TPC works</b>	<b>2023-..</b>
		implementation of a parallel bench test point		
DET-ATc0	C	<b>2nd level trigger w/ CNN</b>	<b>new readout electronics</b>	<b>&gt;2026</b>

# SiC detectors: Summary Table

		Comment/ description	Critical items for R&D	Expected time
DET-SiCa0	A	thick SiC detectors	bias voltage (doping), need characterization	2024
DET-SiCa1	A	array of pixelated SiC detectors	low defect density, mech. mounting, active/dead area ratio	2024
DET-SiCa2	A	fast front-end electronics for sub-ns timing	component availability and procurement, radiation hardness	2024
DET-SiCb0	B	monolithic SiC telescope	buried electrode construction, high capacitance read-out	2025
DET-SiCb1	B	SiC neutron detector	moderation stage study and design	2025
DET-SiCb2	B	systematic study of PSD in SiC	experiment approved by PAC at LNS: need CS beams	2025

# Segmented Silicon detectors

	Sigla	Comment/description	Critical items for R&D	Expected time
DET-Si-a0	A	Low power consumption and low noise preamplifier, differential outputs	Re-design of the read-out multichannel ASIC	2023
DET-Si-a1	A	Development of a system able to read fast-reset signals	Design of a dedicated back-end firmware	2024
Det-Si-b0	B	Multiplexing to speed up the read out	New version of a low dead time analog memory (PLAS)	2025
DET-Si-b1	B	Interhardware PSA	New algorithms for PSA, development of GPU embedded PSA	2025
DET-Si-c0	C	AC-coupled detectors	Re-design of ASIC boards, detectors...	2027

# Zero-degree detection for SPES@LNL

	Sigla	Comment/description	Critical items for R&D	Expected time
DET-Zdd-a0	A	Increase transmission of fast IC grids	Design and construction of new grids with 2-mm spacings	2023
DET-Zdd-a1	A	ToF determination of heavy residues	Design, production and test of a MWPPAC detector	2024
DET-Zdd-a2	A	Development of a beam-tracker system	Design, production and test of two MCP detectors in emissive-foil configuration	2024
DET-Zdd-a2	B	Position sensitive IC	Large number of channels to read, dedicated electronics	2025
DET-Zdd-b1	B	Use of SiC wall for $E_{\text{tot}}$ measurement	SiC characterization to be completed, expensive solution?	2026
DET-Zdd-c0	C	PRISMA at $0^\circ$ for experiment with RIB's	Full simulation, major modifications to electronics and read-out, implementation of movable beam blockers?	2027

# Heavy-ion detection and spectrometers

	Sigla	Comment/description	Critical items for R&D	Expected time
DET-Spe-a0	A	Increase PRISMA sensitivity to light ions	Full characterization of a more efficient focal plane MWPPAC detector, installation	2023
Det-Spe-a1	A	Reach the nominal magnetic rigidity in PRISMA of 1.2 Tm	Change of magnets power supply	2023
DET-Spe-a2	A	Sub-barrier fusion studies with $\gamma$ -particle coincidences	Mechanical integration, electronics	2023
Det-Spe-a3	A	Full characterization of TOSCA	Optimization of voltage divider, new DAQ, possible modifications to mechanics	2024
DET-Spe-a4	A	Movable second arm of PRISMA for fission studies	Design and realization of a new dedicated scattering chamber	2025
DET-Spe-b0	B	Identification of evaporation residues at $0^\circ$ in experiments with RIB's	Realization of a multi-sampling IC	2025-2026
DET-Spe-b1	B	Improve mass resolution in PRISMA for $A \sim 200$	Accurate trajectory reconstruction (software and hardware)	2026
Det-Spe-b2	B	Ancillary detectors and gas targets for fission studies	New chamber to host them, purchase of detectors and electronics, realization of mechanical integration	2026

# Diamond det., Emulsions, Timing: Summary Table

DET-Type	Sigla	Comment/ description	Critical items for R&D	Expected time 2024
DET-3D_Diamond	B	Precision timing (< 100 ps)	Increase of detector area	2024
DET-Emulsion	A	Precision passive tracking	Production site (J, I?)	2023
DET-a-si:H_c0	C	Radiation resistant device	Need R&D for single particle detection	2025