

Materials List for:

Epitaxial Growth of Perovskite Strontium Titanate on Germanium via Atomic Layer Deposition

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Materials

Name	Company	Catalog Number	Comments
MBE	DCA	M600	
Cryopump for MBE	Brooks Automation, Inc.	On-Board 8	
Residual Gas Analyzer for MBE	Extorr, Inc.	XT200M	
ALD Reaction Chamber	Huntington Mechanical Laboratories		Custom manufactured, hot-wall, stainless steel, rectangular (~20 cm long, 460 cm ³)
ALD Saturator	Swagelok/Larson Electronic Glass	See comments	Custom-built from parts supplied by Swagelok and Larson Electronic Glass. The saturator is made out of 316 stainless steel and Pyrex. All parts are connected via butt welding. Swagelok catalog numbers: SS-4-VCR-7-8VCRF, SS-4-VCR-1, SS-8-VCR-1-03816, SS-8-VCR-3-8MTW, 316L-12TB7-6-8, SS-8-VCR-9, SS-4-VCR-3-4MTW, SS-T2-S-028-20. Larson Electronic Glass catalog number: SP-075-T.
Manual Valves for Saturators	Swagelok	SS-DLVCR4-P and 6LVV-DPFR4-P	Both diaphragm-sealed valves are used interchangeably by this group. The specific connectors (VCR male/female/etc.) to use will depend on the actual system design.
ALD Valves	Swagelok	6LVV-ALD3TC333P-CV	
ALD System Tubing	Swagelok		316L tubing of various sizes. This group uses inner diameter of 1/4"
ALD power supply	AMETEK Programmable Power, Inc.	Sorensen DCS80-13E	
ALD Temperature Controller	Schneider Electric	Eurotherm 818P4	
ALD Valve Controller	National Instruments	LabView	Program developed within the group
XPS	VG Scienta		
RHEED	Staib Instruments	CB801420	18 keV at ~3° incident angle
RHEED Analysis System	k-Space Associates	kSA 400	
Digital UV Ozone System	Novascan	PSD-UV 6	
Ozone Elimination System	Novascan	PSD-UV OES-1000D	
Titanium tetraisopropoxide (TTIP)	Sigma-Aldrich	87560	Flammable in liquid and vapor phase

Name	Company	Catalog Number	Comments
Strontium bis(triisopropylcyclopentadienyl)	Air Liquide	HyperSr	Mildly reactive to air and water. Further information supplied by Air Liquide can be found at https://www.airliquide.de/inc/dokument.php/standard/1148/airliquide-hypersr-datasheet.pdf
Ge (001) wafer	MTI Corporation	GESBA100D05C1	4", single-side polished Sb-doped wafer with $\rho \approx 0.04 \Omega\text{-cm}$
Argon (UHP)	Praxair		
Deionized Water			18.2 M Ω -cm