VERSA

SPATIAL ATOMIC LAYER DEPOSITION COMMERCIAL PRODUCTION PLATFORM

ALD Precision at the Speed of Traditional CVD/PECVD.

Traditional ALD delivers exceptional film quality, uniformity, and precision, but slow deposition rates have made commercial production costly and impractical. Until now, manufacturers have faced a difficult choice between the film properties they need and the throughput their operations demand.



Introducing VERSA from Arradiance.

By reducing deposition times from hours to minutes while maintaining comparable film properties, VERSA removes a significant barrier to bringing ALD into commercial manufacturing. Faster deposition lowers production costs, increases throughput, and makes ALD practical for applications where conventional processing times have been prohibitive.

With the ability to support multiple chemistries on a single platform, VERSA gives manufacturers greater flexibility to address changing production requirements without investing in separate systems for every process. Arradiance works directly with customers to optimize those processes and configure the platform around their specific substrates, precursors, film requirements, and production goals.

Customized to Your Process, Backed by Our Expertise.

FILM QUALITY: Comparable ALD film properties, supported by measured uniformity and refractive-index data.

THROUGHPUT: Spatial ALD deposition measured in minutes rather than hours.

FLEXIBILITY: Multiple chemistries on a single platform, with process optimization and configurations tailored to your application.

PARTNERSHIP: Hands-on technical support as you move from research to commercial manufacturing.

LEARN MORE ABOUT VERSA.

Please visit our website and set up a consultation with one of our specialists.

ARRADIANCE®

11A Beaver Brook Road, Littleton, MA 01460 USA
508-202-0593 x100 / **www.arradiance.com**

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Comparable Film Properties. Turning Hours into Minutes.

Comparative measurements across four metal oxide processes evaluate Spatial ALD against conventional Temporal ALD, using time to deposit a 100 nm film, non-uniformity, refractive index, and growth per cycle. These metrics allow your engineers to assess deposition speed alongside key film characteristics.

For the processes tested, Spatial ALD reduces deposition time from hours to minutes, while measured film properties remain comparable. Arradiance works with your team to translate these results into application-specific process conditions and system configurations.

Same film up to 1000x faster.

MATERIAL	PROCESS	TIME TO 100 nm (0 6 12 18)		NON-UNIFORMITY	REFRACTIVE INDEX (n)	GROWTH / CYCLE (Å/cy)
Al_2O_3	Temporal thermal	6.8 h		≤0.45%	1.66	1.1
	Temporal plasma	7.6 h		≤0.89%	1.68	1.2
	Spatial	**5.6 min**	**≈73x – ≈81x***	**≤1.1%**	**1.64**	**1.5**
SiO_2	Temporal thermal	14.3 h		≤1.3%	1.46	0.08
	Temporal plasma	6.2 h		≤2.3%	1.46	0.15
	Spatial	**4.8 min**	**≈78x – ≈179x***	**≤2.0%**	**1.44**	**1.72**
TiO_2	Temporal thermal	17.3 h		≤1.9%	2.54	0.40
	Spatial	**14.6 min**	**≈71x***	**≤0.50%**	**2.44**	**0.57**
SnO_2	Temporal thermal	5.3 h		≤1.4%	1.89	1.4
	Spatial	**8.8 min**	**≈36x***	**≤1.1%**	**2.02**	**0.95**

*Speed ranges compare spatial ALD with temporal thermal and plasma ALD; ratios rounded.

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