



The ALD Powerhouse
Picosun - Pioneering ALD Experience Since 1974

PRESS RELEASE
Available Immediately

**Berkeley
Microlab
installs and
qualifies
Picosun
SUNALE™
ALD reactor**

ESPOO, Finland, and BERKELEY, CA, April 1, 2009 – The Microfabrication Laboratory of the University of California at Berkeley, a leading research institution studying microelectromechanical systems (MEMS) and other electronic devices reports to be pleased with their Picosun SUNALE™ R-150 atomic layer deposition (ALD) reactor, installed and in use since late 2008.

“Picosun made a point in sending both an equipment and process specialist. Our install was unique since we added additional custom hardware and the Picosun team worked with my engineers to accommodate this special request. The install time met Picosun’s estimate and the deposition tests were quickly within specification”, says Dr. Bill Flounders, Technology Manager of Berkeley Microfabrication Laboratory.

“Picosun and Berkeley Microfabrication Laboratory have signed a cooperative research agreement which will benefit us both. We, as a leading ALD tool designer and manufacturer, have identified working together with the leading research institutions to form the basis of our technology and process development strategy”, says Juhana Kostamo, Managing Director of Picosun. “For Picosun, working together with world class scientists at UC Berkeley is a privilege”, Kostamo says.

“For us, the Picosun tool represented the best combination of cost and capability. The SUNALE™ R-150 ALD reactor was qualified for Al2O3 deposition with film deposition rate of 1.02 angstrom per cycle and 1 sigma non-uniformity less than 1% across the wafer. Picosun technical support has been excellent and I expect an ongoing constructive relationship that will benefit our lab members and enhance Picosun’s position among US university research centres”, Dr. Flounders says.

At Berkeley Microfabrication Laboratory, Professor Clark Nguyen and his research group are using ALD to coat micromechanical resonators so that the gaps between their structures and electrodes can be reduced substantially. Reducing such gaps to 10’s of nanometres helps to reduce the impedances of these devices for wireless communication applications.

Professor Tsu-Jae King Liu and her research group use the SUNALE™ R-150 ALD tool to conformally deposit high-permittivity dielectric materials to precise thicknesses, to enable new switching devices for integrated circuits that offer better energy efficiency than conventional complementary metal-oxide-semiconductor (CMOS) transistors.

In 1960, Professors D. O. Pederson, T. E. Everhart, and P. L. Morton produced plans for the world’s first university integrated circuit lab. This was the beginning of today’s Berkeley Microfabrication Laboratory. Over the years, membership of the laboratory has increased to over 500 presently. The present Microlab is in its third decade and will continue operating until a new laboratory is completed. The migration of the Microlab into the new Marvell Nanolab will start this year.

Picosun develops and manufactures Atomic Layer Deposition (ALD) reactors for micro- and nanotechnology applications. Picosun represents continuity to over three decades of ALD reactor manufacturing in Finland. Picosun is based in Espoo, Finland and has its US headquarters in Detroit, Michigan. SUNALE™ ALD process tools are installed in various universities, research institutes and companies across Europe, USA and Asia. Dr Tuomo Suntola, inventor of ALD technology, is Member of the Board of Directors of Picosun. World’s most experienced ALD reactor designer Sven Lindfors is Picosun’s Chief Technology Officer and one of the founders of the company. Picosun Oy is a part of Stephen Industries Inc Oy.

Picosun SUNALE™ deposition data	Al2O3	TiO2
Process Temperature	300°C	280°C
Precursor	TMA (Trimethylaluminium)	TTIP (Titanium Tetrakis Isopropoxide)
Precursor Temperature	Room Temperature	80°C
Oxidizer	DI Water Vapour	DI Water Vapour
Pulse/Purge Time	0.1/4 seconds	0.2/4 seconds
Deposition Rate	1 Å/cycle	0.25 Å/cycle
Non-uniformity	<1%	<5%

Results obtained with Picosun SUNALE™ R-150 ALD reactor at Berkeley Microlab

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