

## SEMICON West, Day 1: CMP, slurries, metrology, thermal, zombies, observations

by Mike Fury, Techcet



July 14, 2010 - The first day of SEMICON West 2010 kicked off with a keynote address by IBM's Bernie Meyerson, who has become a perennial favorite at the podium. His talk, "From Ghz to systems to solutions; our industry in transition," [provided some insights on how Moore's Law is morphing](#) from device scaling to system scaling. Along the way, additional attention is being focused on enabling global IT networks while still leaving enough spare electrical power for us to operate our hybrid cars and HDTV home entertainment systems. It's a shame that keynote addresses so often command the broadest audience but are most frequently the very talks for which slides are not available to attendees.

Rob Rhoades, CTO at Entrepix, reports that they've been seeing a lot of requests for refurbished [CMP](#) tools from non-CMOS clientele, for applications including [MEMS](#), [TSV](#), LED and other compound semiconductors. The consumable materials for these non-standard processes are still being adapted from available semiconductor product lines, as these market opportunities are still generally regarded as too small to justify customized product development.

Marty Mason at Vantage Technology gave me a quick tour of [their real-time, undiluted CMP slurry particle monitoring system](#). Slurry flows through the system at 30 ml/minute and produces a real-time histogram of particle size distribution from 0.9-9.9 $\mu$ m, with the ability to go as high as 20 $\mu$ m. There is some additional capability at the low-end as well, though this seems to be of more interest to slurry developers than to line engineers.

Speaking of CMP, the NCCAUS has scheduled sessions during SEMICON West for the CMP User Group (Wednesday 1-5pm), and on Thursday for the Junction Technology Group and the Plasma Applications Group (both 11am-3pm). AVS is also sponsoring the [International Conference on Planarization/CMP](#)

[Technology](#) (ICPT) in Phoenix, November 14-17.

Pat Levy at Pall Microelectronics gave me a quick tour of their latest filter product introductions. For CMP slurry applications, the Profile Nano Filter is a multi-layer web of melt-blown nanofibers about 50% smaller than their previous generation. In addition, while earlier products were spec'd at the cartridge level, this product line is spec'd at the level of individual filter media layers. The net result in performance on both silica and ceria slurries was a 30% decrease in microscratch defects on the polished wafer surface, compared to their prior generation filter. For broader fab applications, a new generation of filters for surface preparation applications is the Ultipleat line, made with polyarylsulfone rather than a Teflon-related backbone. This allows particle capture to 10nm vs. a 20nm minimum for Teflon. The filter media also incorporates a pore size asymmetry from one side to the other, providing for maximum particle capture with minimum pressure drop, and therefore high fluid flow rates. This product line is intended for functional surface prep chemistries line DHF, BOE, and even more aggressive agents.

Woo Sik Yoo, CTO at WaferMasters, had an unmet [metrology](#) need for characterizing the results of [wafer thermal processing](#) in their hot wall, isothermal processing chamber. Sometimes you just have to invent something yourself to meet that need, but coming up with a suite of three unique measurement tools is a sure sign of an over-achiever. WaferMasters is introducing their metrology products this week. These include multi-wavelength Raman and photoluminescence, and an optical surface profilometer. These can produce both chip-scale and wafer-scale results.

Ceimig Ltd. of Dundee, Scotland, has shown up with the Scottish Enterprise group of small companies and startups. Several suppliers already provide [ALD](#) precursors for BKM tool recipes. Ceimig is a step further back in the R&D pipeline, offering custom synthesis of organometallic compounds for evaluation as ALD precursors, with a focus on platinum group metal compounds. For emerging semiconductor applications, this includes such favorites as Hf, Ru, and Ir.

The folks at Megasonic Sweeping. are very pleased with the level of interest they are receiving for their batch cleaning megasonic transducer tanks. The bulk of their business is in retrofit kits for 200mm wafer tanks. This caught my attention because it is yet another indicator that, in this industry, we are very quick to predict the demise of old technologies but rather slow to bury any bodies. I worked on megasonic cleaning at IBM in the 1980s, and since then obituaries have been posted many times over both for batch cleaning and for wet cleaning. Both seem to be alive and well -- like their other zombie cousin, optical lithography.

In wandering the show floor, the astute observer may notice that the floor today is smaller than the floor of years gone by. Many of the nooks and crannies once filled by smaller booths are empty. Several meeting venues have been moved onto the main show floor, instead of being held in closed conference rooms. It remains to be seen if this open environment is suitable for all of the meetings, if for no other reason than the background noise and distractions from casual passers-by. I will be able to judge this for myself, at the aforementioned NCCA VS CMPUG session Wednesday afternoon on the Moscone South TechSITE stage.

On a personal note, I am very gratified by the number of folks who have asked me if I would be blogging on this SEMICON show, as they'd seen my [MRS](#), [ECS](#), and [IITC](#) blogs and had come to expect more. As I understand it, this is how crack dealers establish their clientele, starting with free samples and then increasing their expectations. Unfortunately, I have no good ideas how to monetize this as effectively as a crack dealer does, and am open to suggestions.

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