

LAMORINDA WEEKLY

[Home](#) | [Read Online](#) | [Archive](#) | [Links](#) | [Advertising](#) | [Contact](#)

[printer friendly](#)

[download pdf](#)

Published April 15th, 2009

NovelX, Opening New Windows for Nanotechnology

By Sophie Braccini



Jim Rynne (left) and James Spallas (left) look at the inside of a mySEM Photo Sophie Braccini

How cool can an electron beam be for a non-scientist? Extremely! Projected onto a surface, the beam triggers the electrons of the object to react. Measure this reaction and you obtain the image of the object in detail to the atomic level: you are viewing the image at the nanoscale (1 nanometer = 1/1,000,000 millimeters or 1/100,000 of a human hair).

This is the technology used by Scanning Electron Microscopes (SEM). The best optical microscope can magnify by 1000x, while the SEM will magnify by 250,000x. This technology has been commercialized for more than forty years, but the hardware requires a lot of space and it's very expensive.

In Lafayette an innovative company, NovelX, has created mySEM, a SEM that's the size of a desktop printer, costs less than a tenth of current SEM models, and produces the same high quality imaging required by the most demanding of researchers. That's why NovelX, which is finishing up its second round of financing, has a long list of customers from research labs and industry R&D departments who want to get their hands on their microscope.

"Nanotechnologies have an enormous potential to create new tools, products and technologies that will address some of our biggest challenges" says Jim Rynne, Vice President of Business Development with NovelX, "what we are providing these researchers are the performing and affordable picks and shovels to dig that gold."

According to a recent Princeton paper, "waiting for access to imaging equipment often presents a major road block in research and development cycles....most SEM's are housed in large core research facilities and are not easily accessible to the researchers that desperately need them."

The uniqueness of NovelX comes from the new technology that the two founders of NovelX, Dr. Lawrence Muray and Dr. James Spallas, have developed by combining their expertise. Muray's background is in advanced electron beam lithography and electron beam tools, while Spallas' expertise lays in semiconductor fabrication and micro-machining MEMS devices. The result is the patented Novelx Stacked Silicon technology, a miniaturized device at the core of the mySEM that achieves sub 10nm resolution.

MySEM has other competitive advantages such as the low voltage imaging that allows a delicate address of the surface that's viewed. Bigger SEMs that use high voltage require the coating of non-conductive samples so the electron beam does not damage them. Low voltage is particularly appropriate for the observation of surfaces, such as cells.

NovelX has sold its Beta systems to UC Berkeley, UC San Francisco, Stanford University and the Naval Postgraduate School. AT UCSF, before getting their mySEM, researchers had to book time with an institution that had a large SEM and physically transport their experiment either down to the Peninsula or over the bridge. "Not only didn't they have the budget to buy a big system, but they didn't have the space and the infrastructure that's required," explains Rynne.

NovelX's clients are starting to publish results including imaging obtained using mySEM. As a result, the company is receiving multiple awards, and getting a lot of coverage in scientific publication. Their first financing came from a DARPA (Defense Advanced Research Projects Agency) grant; they now need \$1.5 million to expand production and ramp up sales. NovelX will seek an additional \$2M to finance additional growth and achieve breakeven in 2011. Lafayette angel capital group Keiretsu Forum has taken a keen interest in them and is helping to secure the money necessary for the expansion.

"We have now stepped out of the Beta phase to enter the limited production chapter of our history," says Rynne. The Lafayette resident, and father of two Burton Valley Elementary school students, estimates the potential market for mySEM to \$400M. According to the Princeton paper, the market size is in the thousands of units; NovelX has no choice but to grow.

Reach the reporter at: sophie@lamorindaweekly.com

[Home](#) | [Read Online](#) | [Archive](#) | [Links](#) | [Advertising](#) | [Contact](#)

[back to top](#)

Copyright © Lamorinda Weekly, Moraga CA