

Intermolecular's High-Throughput Experimentation Platform Speeds Discovery of Next-Generation Non-Volatile Memories

Using Deep Experience in Chalcogenides, Evaluates Thousands of Unique Material Compositions

- Identifies the most promising selector characteristics and potential material systems for NVM using state-of-the-art PVD and ALD equipment
- Leverages IMI's extensive expertise in memory and chalcogenide materials
- Enables customers to assess a selector's performance to key device operation, reliability and scaling specifications

SAN JOSE, Calif., Aug. 1, 2017 /PRNewswire/ -- [Intermolecular](#), Inc. (NASDAQ: IMI), the trusted partner for advanced materials innovation, today announced its High-Throughput Experimentation Platform for materials discovery for selectors used in next-generation non-volatile memory technology (NVM) in 3D Crosspoint architectures. Using both PVD and ALD technologies to evaluate chalcogenides, IMI has demonstrated its value proposition of performing a high number of experiments in a short period of time, for evaluating a wide range of complex and/or toxic materials in a rapid and cost effective manner. This allows customers to dramatically speed the screening, discovery and implementation of the right selector materials, while also ensuring their suitability for high-volume manufacturability and reliability.

"The rapid move towards next-generation NVM memories in 3D Crosspoint architectures has created a critical need for current steering devices or selectors," said Milind Weling, senior vice president of Programs and Operations at Intermolecular. "Chalcogenides are promising selector materials but the specific elements and composition spaces showing selector behavior per specific key performance metrics is not well known. Using our High-Throughput Experimentation platform, combined with Intermolecular's extensive know-how and experience with advanced memories and chalcogenides, we can dramatically speed the discovery and reliable characterization of these challenging materials compositions for emerging NVM devices."

The Key Element in Next-Generation Volatile Memories

Studying new materials is expensive, slow and constraining for the speed and quality of materials innovation required, sometimes taking up to six months for their introduction into memory fabs. The complexity, toxicity and diversity of the materials to choose from has proven to be extremely challenging for memory companies, thereby creating a critical need in the industry for better ways to screen and discover selector materials stacks. Chalcogenides have proven extremely challenging to deposit and characterize, yet the advantages they bring are so critical and useful that memory device makers are searching for how to realize these new materials. Co-optimization of chalcogenides for specific compositions and electrical operation enables customers to meet performance, density and reliability specifications for these devices. Use of high-throughput experimentation for such advanced co-optimization can provide memory manufacturers with substantial competitive advantages as they bring next generation memory devices to market. Intermolecular has screened thousands of chalcogenide compositions over a four-year period and demonstrated promising selector behavior in several systems with different mechanisms.

Upcoming Presentation at Flash Memory Summit (FMS)

Intermolecular has a strong presence at next week's FMS 2017, with participation in two technical panels highlighting the challenges and solutions in developing selector technology for 3D crosspoint memory:

1. 3D XPoint: Current Applications and Implementations; Milind Weling, SVP, Programs and Operations
2. 3D XPoint in 2022: Where We Are and How We Get There; Karl Littau, senior principal scientist, CTO Office

Intermolecular is also chairing a "Chat with the Experts" table over beer and pizza on Resistive Random Access Memories (RRAM). Topical co-chairs for the RRAM table are: Mark Clark, senior director, Technology and Joy Watanabe, senior director, Customer Enablement.

Tweet This: Evaluate thousands of unique chalcogenide compositions in about a year's time #semiconductor R&D Labs, @imimaterials, @flashmem

Tweet this: 3D XPoint: Current Implementations and Future Trends, @IMIImaterial's presentation at @flashmem.

Supporting Materials:

- | [IMI Website](#)
- | [Resources/Images](#)

About Intermolecular, Inc.

Intermolecular is the trusted partner for advanced materials innovation. Advanced materials are at the core of innovation in the 21st century for a wide range of industries including semiconductors, consumer electronics, automotive and aerospace. With its substantial materials expertise, accelerated learning and experimentation platform and customer-driven approach, Intermolecular has a decade of experience helping leading companies accelerate materials innovation.

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