



FOR IMMEDIATE RELEASE

**RASIRC Renews Funding for Atomic Layer Deposition Research at University of California, San Diego (UCSD)**

*Gift donation supports one student researcher for one year*

San Diego, Calif – August 31, 2016 –RASIRC announced today that it has renewed its funding agreement with the University of California, San Diego (UCSD) for on-going semiconductor processing research. Professor Andrew Kummel of the Department of Chemistry represents UCSD in this agreement. The gift donation supports one student for one year. RASIRC made a similar gift donation last year. RASIRC manufactures BRUTE® hydrogen peroxide and hydrazine vaporizers for emerging ALD applications.

“Our ongoing research focuses on solving difficult materials problems associated with emerging semiconductor technology,” said Professor Kummel. “Financial and technical support from RASIRC aids our efforts to create new films and passivation layers for continuous shrinkage of semiconductor devices.”

As part of the agreement, RASIRC provides BRUTE® Peroxide and BRUTE Hydrazine materials for experimentation. The UCSD team produced and published significant findings from these materials during the previous year of research. Chemists and engineers from both organizations regularly collaborate on research and share their findings. Research covers passivation of SiGe channel materials and development of new low temperature deposition methods for metal nitrides.

“Universities play a critical role in chemical and materials research behind advances in the semiconductor industry as shown by the results produced and published by UCSD over the past year,” said Daniel Alvarez, RASIRC Chief Technology Officer. “UCSD is

a great partner and we look forward to working with the team to perfect novel new chemistries that solve very difficult problems where traditional methods do not work.”

Professor Kummel’s group is focused on understanding and imaging chemical processing at the atomic level. Current projects include (1) In-situ cleaning and functionalization of SiGe, Ge, and InGaAs semiconductors for defect-free interfaces on FinFET sidewalls and contacts; (2) Selective etching and ALD on semiconductors and insulators; (3) Non-Covalent Functionalization of two-dimensional semiconductors; (4) Nano-scale synthesis of silica nanoshells for tumor ultrasound imaging and ablation. Additional detail on the Kummel Research Group can be found at <http://kummelgroup.ucsd.edu>.

### **Professor Andrew Kummel**

Andrew C. Kummel received his undergraduate degree in Chemical Engineering from Yale University and his Ph.D. degree in chemistry from Stanford University. He is currently a Distinguished Professor in the Department of Chemistry and BioChemistry at the UCSD, an affiliated faculty member in NanoEngineering as well as Materials Science and Engineering, and the Assistant Director of the UCSD Moores Cancer Center for Engineering and Physical Sciences. Among his favorite pastimes are enjoying the intense collaborations and multiple weekly group meetings with colleagues from various semiconductor and cancer multicenter research projects.

### **About BRUTE Peroxide**

BRUTE Peroxide delivers anhydrous H<sub>2</sub>O<sub>2</sub> gas. Process engineers can now use H<sub>2</sub>O<sub>2</sub> gas by itself, or with a carrier gas. This is the first time that H<sub>2</sub>O<sub>2</sub> gas and water vapor can be differentiated in process reactions.

### **About BRUTE Hydrazine**

BRUTE Hydrazine delivers water-free hydrazine (N<sub>2</sub>H<sub>4</sub>) gas into atomic layer deposition (ALD) processes. Brute Hydrazine provides a safer way to handle Hydrazine. Precursor vapor pressure is maintained at levels viable for ALD under vacuum with or without a carrier gas.

## **About RASIRC**

RASIRC specializes in products that generate and deliver gas to fabrication processes. Each unit is a dynamic gas plant in a box—converting common liquid chemistries into safe and reliable gas flow for most processes. First to generate ultra-high purity (UHP) steam from de-ionized water, RASIRC technology can now also deliver hydrogen peroxide gas and hydrazine gas in controlled, repeatable concentrations. RASIRC gas delivery systems, humidifiers, and closed loop humidification systems are critical for many applications in semiconductor, photovoltaic, pharmaceutical, medical, biological, fuel cell, and power industries. Call 858-259-1220, email [info@rasirc.com](mailto:info@rasirc.com) or visit [www.rasirc.com](http://www.rasirc.com).

#####

### **Contacts:**

RASIRC

Jeffrey Spiegelman

Phone: 858-259-1220

E-mail: [jeff@rasirc.com](mailto:jeff@rasirc.com)