FOR IMMEDIATE RELEASE

RASIRC Presents Comparative Study of TiO2 and Al2O3 Film Growth and Characteristics

Spacer and Hardmask ALD with hydrogen peroxide as oxidant shown superior to ozone, water

San Diego, Calif – February 23, 2020 – RASIRC announced today that Chief Technology Officer Dr. Daniel Alvarez, Jr. will present at the upcoming SPIE Advanced Lithography conference **Advances in Patterning Materials and Processes XXXVII** held in San Jose, California on February 23-27, 2020. The presentation *"Sacrificial hardmask ALD with hydrogen peroxide: comparative study of low temperature growth and film characteristics for* TiO_2 *and* Al_2O_3*,"* is part of Session 7: Deposition-based Patterning scheduled February 26 at 9:00 AM in Grand Ballroom 220C of the San Jose Convention Center.

"Emerging devices demand greater precision in patterning than can be achieved with optical lithography," said RASIRC President and Founder Jeffrey Spiegelman. "New multiple patterning techniques rely heavily on atomic layer deposition at low temperature to accommodate sensitive materials. Hydrogen peroxide enables precise engineering of key intrinsic film properties."

Multiple Patterning Challenges

Optical lithography becomes very challenging as line widths decrease. Multiple patterning is needed to enable 3, 5, and 7nm processes. Atomic layer deposition (ALD) offers greater precision during deposition because it is a layer by layer process. However it must be conducted at low temperature to avoid property changes to underlying materials and must yield high quality film properties.

"Self-Aligned Quadruple patterning and related patterning schemes depend on high quality film deposition with minimal variability," said Alvarez. "Our studies of TiO_2 and Al_2O_3 spacer materials show that high growth rate and improved etch resistance can best be achieved at low temperatures with H_2O/H_2O_2 as the oxidant."

Dr. Alvarez will be attending the full conference and is available to discuss study findings in detail. For more information following the conference, contact RASIRC at info@rasirc.com.

Related RASIRC Products

RASIRC Peroxidizer® provides high volumes of reactive H_2O_2/H_2O mixtures for high throughput ALD. This reactive gas generator is ideal for spatial ALD coatings that require high speed deposition at reduced temperatures.

BRUTE Peroxide is a novel oxidant that improves nucleation density at film interfaces when compared to other oxidants. Surface functionalization is denser and initiation is faster using anhydrous hydrogen peroxide gas compared with alternatives. This enables better selectivity and less damage to metal surfaces in multiple-patterning processes.

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 safer 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 or visit http://www.rasirc.com.

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Contacts:
RASIRC
Jeffrey Spiegelman
Phone: 858-259-1220
E-mail: jeff@rasirc.com