

Introduction to Photolithography

Joyce Lowes

*Director of Emerging Materials
Brewer Science's Corporate R&D*



**Chemistry
Colloquium on
Photolithography**

**3:15 p.m.
Friday
April 14 in 303
Schrenk Hall**

**Please contact Dr.
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for more information**

**MISSOURI
S&T**

Corporate R&D scientists of Brewer Science Inc, a globally well-known industry in Microelectronic Materials Manufacturing located in Rolla, will deliver three colloquia in Chemistry on 04/14, 04/21 and 04/28 at 3:15 pm in 303 Schrenk.

Undergraduate and graduate students across disciplines are invited to attend.

1/3: Introduction to Photolithography by Joyce Lowes

2/3: Extending Moore's Law Through Advanced Packaging by Andrea Chacko

3/3: New Material Needs in the Semiconductor Industry by Reuben Chacko

Abstract: Nearly all the electronic devices that make the world what we know today, from supercomputers, self-driving automobiles, and smart phones to children's toys and musical greeting cards, rely on integrated circuits (ICs). IC manufacturing is based on a process called photolithography. Photolithography is used in combination with other techniques to build the billions of nanoscale transistors used in each one of today's integrated circuits. In this session, we'll review a quick history of ICs and introduce the processes used to make these devices, focusing on photolithography and how a small company in Missouri helps lead development of some of the most advanced devices in the world.

About the speaker: Joyce Lowes currently serves as Director of Emerging Materials in Brewer Science's Corporate R&D organization. She leads several programs that primarily explore new ideas and early platform development, focusing on various carbon films, advanced EUV underlayers, optical films, and other ancillary films for use as various solutions in semiconductor patterning processes. Lowes has been with Brewer Science since 2002, serving as a Director of Emerging Materials since 2018. During her career at Brewer Science, Lowes has worked as a Senior Program Manager, Program Manager, and researcher and was responsible for high temperature carbon films, directed self-assembly (DSA), selective surface modification, and developer-soluble bottom antireflective coatings (BARCs). With a passion for research, Lowes appreciates collaboration and enjoys working with partner companies and research institutions across the globe.