



UCONN

MRS Chapter Spring 2009 Seminar Series

Stephen Roux of ASML

The world's leading provider of lithography systems for the semiconductor industry

Wednesday, March 18, 2009

10:30 – 11:30 am

IMS 20

-Preceded by coffee and cookies-

Photolithography Overview

This talk will be a broad technical overview of the complex machines that pattern the integrated circuits we all use each day. Some topics will be presented in more depth particularly the challenges of immersion lithography where water is introduced between the imaging lens and the wafer being exposed. Also discussed is how these remarkable tools can print circuit lines much thinner than the wavelength of the laser light used in the process, somehow defying standard rules associated with optical systems. The materials challenges in these machines are substantial and those will be highlighted throughout the talk.

ASML Profile

ASML is the world's leading provider of lithography systems for the semiconductor industry, manufacturing complex machines that are critical to the production of integrated circuits or microchips. Headquartered in Veldhoven, the Netherlands, ASML designs, develops, integrates, markets and services these advanced systems, which continue to help our customers - the major chipmakers - reduce the size and increase the functionality of microchips, and consumer electronic equipment. Product development is under way to deliver new machines capable of printing circuits with features as small as 32 nanometers. The company also has development activities in Connecticut and California as well as in Asia.

Biosketch

Steve Roux began his engineering career in 1990 as a technician and later Mechanical Engineer at IBM's T.J. Watson Research Center in Yorktown, NY. In 1997, he changed companies and moved to SVG, a Connecticut based offspring of Perkin Elmer, that designed and marketed a line of lithographic equipment used in the semiconductor industry. Steve worked primarily on the mechanical and mechatronic systems in a number of advanced lithography machines and concepts and became part of ASML when the two companies merged in 2001. Currently, Steve heads a team of 20 engineers and their work is focused on advanced stage designs related to positioning the photomasks in the machine. Steve earned a BSME from Fairfield University and a MSME degree from Rennselaer Polytechnic Institute. He is also named as inventor or co-inventor on more than 20 US patents.