Combining these extreme-precision surfaces with high-energy laser coating, we have been able to achieve the highest DUV laser resistance coatings in the industry. Our applications at both 193 nm and 157 nm have far exceeded requirements above 3mj/cm2/pulse for over a 10-year lifetime. These coatings utilize various methods of film densification to ensure both high laser resistance and stable performance over the life of the coatings. Our design to resistance coatings include polycrystalline substrates to high-efficiency AR coatings, but also to beamsplitter coatings and high reflectors as well. These same techniques have recently been utilized in work with near infrared as well as X-ray wavelengths in both regions. By designing our coatings equipment to allow multiple deposition techniques, including sputter, electron beam, magnetron sputtering, resistors and ion assisted deposition, we can cover the range from 157 nm to the X-ray region.

Unique Total System Solutions
Working in conjunction with our optical design and manufacturing teams, ASML Optics can provide a complete system solution to your coating needs. We start with a systems approach to the coating design using our proprietary modeling software to optimize your system performance and design coating solutions that incorporate all process controls and tolerancing. This technique saves time and money, allowing for prototyping with minimal material investment, cost improvements and process improvements.

ASML Optics Delivers Ultra-Flat Wafer Chuck to WaveFront Sciences
WaveFront Sciences, seeking precision and accuracy for their Columbus™ Wave Nanotopography Measurement System, recently contracted with ASML Optics to provide an extreme precision wafer chuck to meet their exacting requirements. WaveFront Sciences is marketing the Columbus product to wafer manufacturers as well as IC manufacturers to more accurately qualify wafer flatness and characterize wafer flatness. This wafer chuck technology demonstrates ASML Optics’ ability to manufacture precision glass structures for extremely accurate applications such as those used in semiconductor equipment for IC fabrication.

ASML Optics Provides PerfectWave™ Metrology to SSG Tinsley
PerfectWave Metrology products continue to enable significant advancements in optics manufacturing by providing unparalleled precision in interferometric metrology. SSG Tinsley, a leading manufacturer of complex optics and systems with special emphasis on aspheric optics, has recently purchased PerfectWave F/3 and F/7 transmission spheres to support optics manufacturing at the nanometer level. “PerfectWave metrology is the only choice when extreme precision is needed,” says Jay Daniel, director of engineering at Tinsley. PerfectWave Transmission Spheres are offered in the standard version at 1 nm rms accuracy and in the extended version at 0.5 nm rms accuracy.

Demonstration of Systematic Wavefront Error Correction for NASA’s EPIC Project
Barry Gwinn, vice president of Optics at ASML Optics, will present a paper entitled “System Wavefront Error Correction Using a Complex Aspheric Mirror” at the SPIE 49th Annual Conference in Denver. The paper describes a hardware demonstration project for NASA and test results in which a nominally flat, 7-inch-diameter aspheric mirror is used to correct the highly aberrated wavefront error of an off-axis parabolic mirror to 0.5 nm rms.

ASML Optics is also exhibiting at the SPIE Annual Conference with examples of our Asphere Advantage™ technology, Design-to-Image™ Solutions, and PerfectWave™ Metrology. Please visit us at booth #544 in Denver, Colorado.