

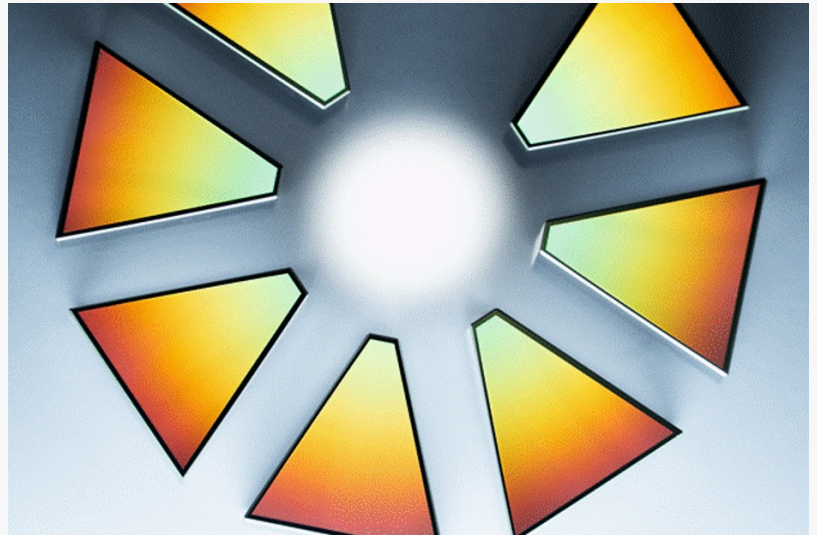
Inprentus Delivers Highly Curved, Concave Diffraction Gratings for NASA Solar Science Mission

Milestone marks the first major shipment of seven out of fourteen gratings contracted under NASA SBIR Phase III for ESIS-II solar imaging mission.

CHAMPAIGN, IL, UNITED STATES, September 9, 2026 /EINPresswire.com/ -- Inprentus, a global leader in advanced manufacturing of blazed diffraction gratings, has delivered the first set of [spherical, highly concave diffraction gratings](#) for a NASA-sponsored solar science mission — a significant technical achievement and a major milestone in the company's contract with NASA.

The gratings, delivered in early August, are the first of two sets Inprentus will produce for the ESIS-II (EUV Snapshot Imaging Spectrograph II) Mission under a Small Business Innovation Research (SBIR) Phase III contract with NASA, [as highlighted here](#).

The delivery also marks a technical milestone for the company: these gratings were ruled on seven highly concave spherical substrates of a specialized triangular shape. The ESIS-II gratings are formed on spherical surfaces curved to match the inside of a six-foot-diameter ball. Producing them requires the contact lithography tool to follow the curved contours of the substrate precisely to form grooves with variable line spacing.



Highly-curved, concave diffraction gratings manufactured by Inprentus for the ground-testing phase of the NASA-sponsored EUV Snapshot Imaging Spectrograph II (ESIS-II) mission. The gratings were delivered in August 2026. Courtesy: Nick Toombs, Inprentus.



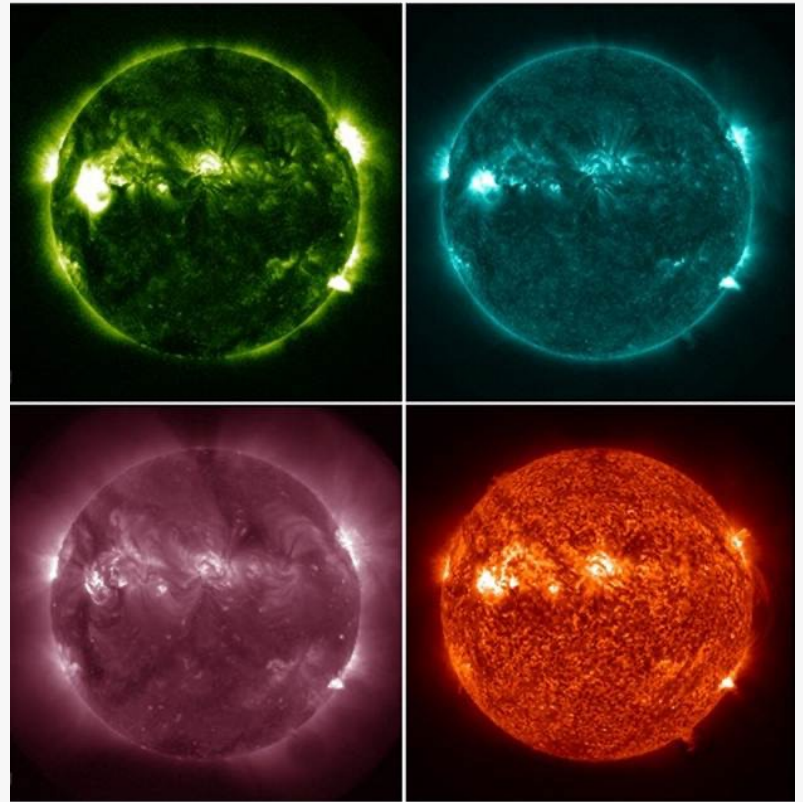
"Inprentus' flexible manufacturing platform allows the tool to follow any arbitrary path, perfect for creating freeform gratings. The technical team rose to the significant challenge required to make these concave gratings. The high degree of curvature required writing custom path scripts for the tool to follow," said Cody Jensen, Chief Technology Officer of Inprentus. "[Our technology](#) is based on a programmable, digital ruling architecture with 8 axes of control. We have now added a 9th axis of control, which makes the platform even more robust for following curved contours," added Nick Toombs, Senior Development Engineer.

Each grating consists of thousands of grooves precisely placed within the custom-shaped optically polished area of the substrate. The grooves are formed using Inprentus' dynamic contact mode lithography technique, which ensures that light collected by the ESIS-II optics forms sharp images to enable precise scientific measurements. The same process "blazes" the groove shape so the grating diffracts a specific type of light — in this case, extreme ultraviolet (EUV) — with maximum efficiency.

“

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Nick Toombs, Inprentus Senior Development Engineer



ESIS-II will record video of the Sun simultaneously at multiple extreme ultraviolet (EUV) wavelengths. The video frames will look like the images, color coded by wavelength, shown here. Starting clockwise from the top left: 9.4 nm (green), 13.1 nm (blue),

This first set of gratings will be used for ground testing of the ESIS-II optical system. The flight-ready set that follows will enable the instrument to capture simultaneous video at multiple EUV wavelengths, revealing how the Sun's hot gases move during solar storms. That data is expected to improve space weather forecasting for both satellites and crewed space missions alike. The flight gratings are scheduled to be delivered later this year.

About Inprentus

Founded in 2012 by University of Illinois Professor Peter Abbamonte, Inprentus specializes in the manufacturing of blazed diffraction gratings using a novel, nano-scale

mechanical ruling technique. The company provides state-of-the-art optical solutions for synchrotrons, free-electron lasers, semiconductor metrology, and space-based imaging systems worldwide.

Inprentus aims to apply 21st century mechanical ruling to solve critical current and future grating-centered challenges. We are committed to excellence, risk, and pushing boundaries by providing state-of-the-art blazed gratings that perform to unprecedented specifications and that enable novel applications. Outcomes include next-generation monochromators, spectrometers, laser systems, and analytical instrumentation in defense applications, as well as ground-breaking consumer experiences enabled by improvements in chip manufacturing and see-through AR waveguides. Inprentus is dedicated to facilitating next-level science and technology by continually enhancing our capabilities with cutting-edge developments, collaborations, and partnerships. For more information, visit [Inprentus.com](https://www.inprentus.com).

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