



CASE STUDY /

Ansys + UpNano

“By using OpticStudio to optimize our manufacturing yield, we iterated our project cycles far more quickly and came up with accurate estimates for materials usage. We also discovered ways to input the optimizations directly for tolerance parameters, and as a result, we could get the yield data we needed within a few minutes or hours rather than waiting days.”

Peter Gruber

Co-founder and Head of Technology / UpNano

UpNano Builds Ansys OpticStudio Into Its Successful 3D Lens Prototyping and Complex Lens Analysis Workflows

Winning the race to the market means finding strategic ways to gain insights from reliable data, apply the latest technologies, boost innovation, and minimize production cycles without sacrificing quality. Vienna-based UpNano helped its customers do exactly that by furnishing them with technology and analysis capabilities that accelerate optical product development while enabling decision guidance for developing simple polymer lenses versus more complex freeform or aspherical varieties.

/ Challenges

The market is booming for optical technology. Manufacturers in industries like consumer electronics and optical sensor-based medical diagnostics are seeking new ways to gain competitive advantage. The faster they can reach the market with viable, high-quality products that meet the ever-expanding range of consumer expectations, the better their chance to survive and thrive.

/ Ansys Products Used

- OpticStudio Professional

/ Engineering Solution

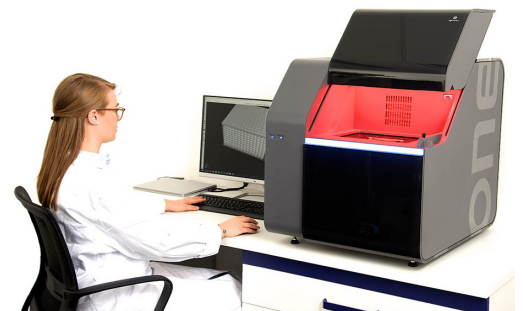
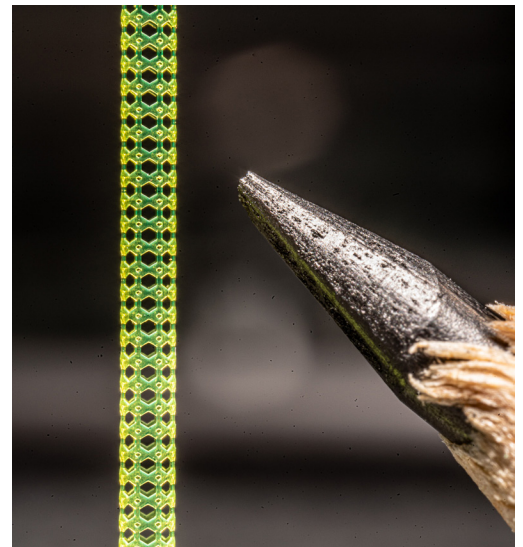
UpNano combined their additive manufacturing system NanoOne with Ansys' virtual prototyping technologies to help companies optimize polymer lens development and achieve high-resolution precision at an unprecedentedly tiny scale. The high-powered lasers and data-driven system design enhancements yielded rapid fabrication techniques at the nano, micro, meso, and macro range.

At the heart of these efficiency gains was UpNano's ability to incorporate 3D printing capabilities that match the current market demand for hyper miniaturization. The company's 3D printing technologies enabled UpNano and its customers to quickly produce prototypes they can use for validating optical system designs, instead of spending the extra time and money required to manufacture lens prototypes using traditional methods.

Another important use of OpticStudio for UpNano was to test the technology transfer required to transition from a multi-spherical lens design to a single, complex aspherical approach. Using virtual prototyping capabilities in OpticStudio, UpNano tested various designs and advised customers on the manufacturability of their optical solutions with simple versus complex lenses.

/ Benefits

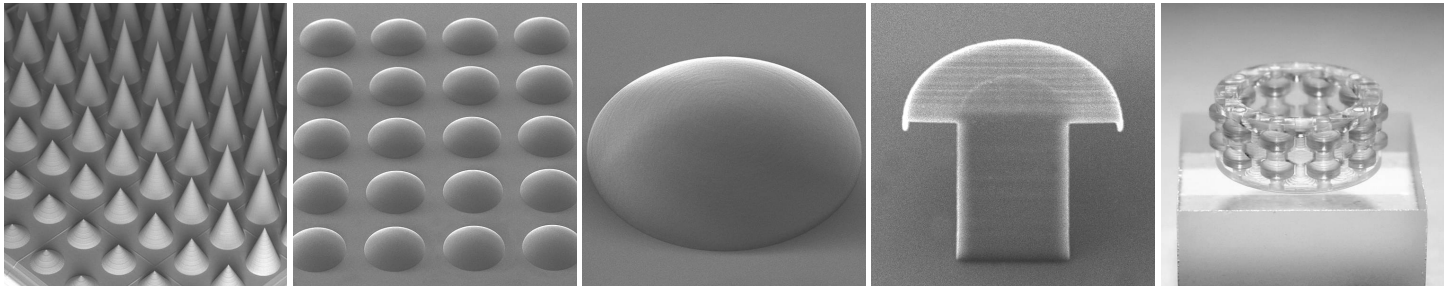
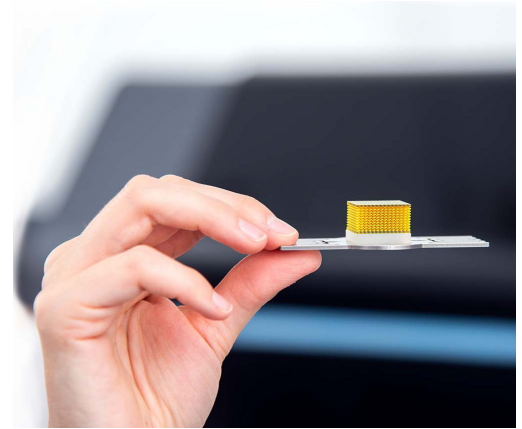
- UpNano's 3D printing technologies enabled the company — and their customers — to quickly produce prototypes they can use for validating optical system designs. By doing so, they avoided spending the extra time and money required to manufacture lens prototypes using traditional methods.
- Rather than waiting a few months to get a prototype, UpNano engineers could quickly 3D print a model, discover the impact of their latest changes, and go right back to generating the next series of improvements to their product designs.
- By calculating the relative costs and production times of their different lens type configurations to meet individual customer requirements, UpNano empowered customers with real data that can help guide their approach to achieving a final product.



- Using inputs available in OpticStudio, UpNano minimized the impact of potential fabrication errors on lens performance, including errors with lens geometry and in the refractive index.
- This in turn increased UpNano's manufacturing yield because the software enabled them to rule out design approaches that couldn't withstand the necessary tolerancing conditions.

/ Company Description

UpNano is a system provider for high-resolution 3D printing. In addition to the development, production, and manufacturing of printing systems and the corresponding operating software, UpNano offers printing materials and accessories optimized for the process. Quality and environmental awareness are two fundamental prerequisites which are reflected in the ISO 9001 and 14001 certifications of the company.



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