# METASURFACES: FROM LAB TO MASS PRODUCTION

**Rob Devlin,PhD**
CEO Metalenz

**Abstract:** Metalenz is a Harvard University spin-out from the group of Professor Federico Capasso founded in 2016. Since our formation we have been commercializing metasurface optics, "meta-optics". Meta-optics are completely planar, multifunctional optical elements that are comprised of nano-scale pillars of a single physical height. Metalenz' design capability has enabled these metasurface optics to significantly simplify optical systems, e.g., reducing 3D imaging systems from 6 optical elements to a single planar metasurface while improving performance. I will discuss our path from the university lab to mass markets. I will highlight both the challenges as well as enabling infrastructure that has allowed us to launch a new optical technology into consumer electronic devices.

***Bio note:*** Rob Devlin is founder and CEO of Metalenz. At Metalenz Inc. Rob is focused on commercializing revolutionary flat optical technologies, metasurfaces, that will transition large-scale production of optical devices into semiconductor foundries, enable great reduction in optical module complexity while improving performance and transform consumer electronics, from 3D imaging to cell phone cameras.
In addition to enabling emerging fields, the work of the team at Metalenz will introduce entirely new forms of optical sensing, which have previously been confined to niche markets because of the size or cost of the optical sensing modules, into consumer electronics markets.
Prior to founding Metalenz Rob completed a joint BS/MS in Electrical Engineering and Materials Science at Drexel University and he completed his Ph. D. at Harvard University in Applied Physics with Professor Federico Capasso. His research has spanned the topics of nanofabrication, nanophotonics and materials science. He has authored or co-authored more than 20 publications, one of which was selected as the cover of *Science* journal and voted one of *Science's* 10 breakthroughs of the year 2016. These publications provided advances in the emerging field of metasurfaces (planar nanoscale optical components) including the first demonstration of high efficiency metasurfaces throughout the visible spectrum. His work focuses on moving scientific research towards real world applications leading to 15 patents and patent applications