

Sibling Journal to *Advanced Photonics*: *Advanced Photonics Nexus*

Since its first issue launched in January of 2019, *Advanced Photonics* has been a new member in the global optics and photonics family for more than three years. *Advanced Photonics* received its first Impact Factor of 13.582 in June this year and is ranked in the top 5 in the Optics and Photonics journal category.[1] This successful experience encouraged us to consider a broader publication strategy in order to better serve the global optics and photonics community. We are very pleased to introduce a second member of our journal family, *Advanced Photonics Nexus*, which launches this month.

In this inaugural issue, we feature one review article and five original articles covering fast-developing fields of modern optics and photonics. The review article focuses on deep learning spatial phase unwrapping and provides a detailed comparison of these deep-learning-based methods and traditional methods in the same context.[2] Since Allen et al. demonstrated 30 years ago that beams with helical wavefronts carry orbital angular momentum (OAM),[3] research on OAM has blossomed. We feature two research articles on OAM. Fu et al.[4] present the OAM comb generation from azimuthal binary phases, a simple approach that opens new prospects for OAM spectrum manipulation and paves the way for many applications. Yang et al.[5] present multiwavelength high-order optical vortex detection and demultiplexing coding using a metasurface. Its realization with a metasurface enables the combined measurements of OAM, the radial index, and wavelength using a single optical component.

The issue also features three research articles on nonlinear, quantum, and integrated photonics. Liu et al.[6] present an ultra-broadband and low-loss edge coupler for highly efficient second harmonic generation in thin-film lithium niobate and demonstrate greatly reduced power consumption in nonlinear frequency conversion. Wang et al.[7] show the deterministic generation of large-scale hyperentanglement in three degrees of freedom. Such large-scale continuous variable superentanglement is deterministically generated experimentally for the first time, and the quantum entanglement capacity in continuous variable system is greatly improved. McGarvey and Bianucci[8] present the general treatment of dielectric perturbations in optical rings; a formalism is introduced to describe the resonances in optical ring resonators subjected to a perturbation in their dielectric profile. Not only is this invaluable information for practical implementation of integrated photonics devices where fabrication inhomogeneities are always present, but also this formalism provides interesting insights on the effect of general perturbations.

Advanced Photonics Nexus is designed as a Gold Open Access journal that publishes novel results of high significance and broad interest in all areas of optics and photonics. It publishes high-quality original papers, letters, and review articles, reflecting important advances in fundamental and applied aspects of optics and photonics.

The most common inquiry raised by the community in the past months is what differentiates *Advanced Photonics* and *Advanced Photonics Nexus*. This is really an important question we discussed in depth before launching this new journal. We believe that both journals should publish only novel results of high significance and broad interest. With *Advanced Photonics Nexus*, we would like to provide the optics community an additional opportunity for fast-track publication of suitable articles which undergo strict peer-review, either directly submitted or transferred from its well-established sibling *Advanced Photonics*. On behalf of our eminent editorial board, we guarantee both paper quality for our readers and smooth publishing experience for our authors.

We are looking forward to publishing your research.

References

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