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Year in Review

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Michael T. Eismann, "Year in Review," *Opt. Eng.* **58**(2), 020101 (2019), doi: 10.1117/1.OE.58.2.020101.

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When I first subscribed to *Optical Engineering* as a graduate student, I would receive the monthly issue in the mail, peruse the table of contents for papers of interest, and thoroughly read those papers before the next issue arrived a month later. Since then, scientific publishing has almost completely moved into the digital age, and I suspect that typical reading habits have changed considerably from this print-age approach decades ago. But I wonder how many readers still start with the table of contents for each issue to identify papers of interest as opposed to starting with a search engine that identifies *Optical Engineering* papers amongst others from different journals based on keywords.

The downside of not entering the journal through the table of contents is that readers might not get a full sense of the emerging trends in the optical engineering field and may miss some of the real gems that do not fall within the search criteria. Even as an editor, I sometimes lose sight of this. So I like to go back at the end of the year and review the special sections and top downloaded and cited papers to get a sense of what is happening in the optical engineering field. I also perform a review of how the journal appears to be performing from an operational perspective in order to determine what we should improve during the next year.

Optical Engineering published nine special sections in 2018. Of these, two special sections generated the greatest interest: one on quantum and interband cascade lasers in the January issue, and the second on light-field and holographic displays in the June issue. Three of our top-ten downloaded papers and four of our top-ten cited papers were published as part of these special sections. While much smaller in terms of the number of published papers, the special section on photon counting technology can also claim a paper in each of these top-ten lists.

Of the top-ten downloaded papers, six were published in special sections, two are review papers (one in a special section), one is a tutorial and only two are regular papers. Nine of these were published with open access, which I am sure enhanced the number of downloads. The special section papers addressed holographic wavefront printing for 3-D display,[1] real-time reconstruction for holographic 3-D displays,[2] computational photon-counting light detection and ranging (LiDAR) sensor for 3-D imaging,[3] aspheric lens mounting to achieve fine decentration and tilt accuracy,[4] and multi-heterodyne spectroscopy with interband cascade lasers for chemical sensing.[5] The top downloaded paper provided a tutorial on the characterization of Moiré effects that arise in displays,[6] and the two review papers provided state-of-the-art assessments of self-mixing interferometry for mechanical engineering applications,[7] and high-fidelity imaging spectrometer design for airborne and space-based remote sensing.[8] The two regular papers in the top-ten list included a theoretical paper describing a momentum exchange theory for photon diffraction that uses momentum transfer probability distributions as an alternative to classical wave theory,[9] and an applied paper on an underwater laser communications system based on a 680 nm vertical external cavity surface emitting (VECSEL) laser to achieve wider bandwidth than more prevalent blue-green laser systems.[10]

While citation statistics at the end of the publication year are not very reliable, they do indicate some of the potentially most impactful papers. Three of the top ten were published in the light-field and holographic display special section: the paper related to holographic wavefront printing,[1] a paper detailing an active matrix spatial light modulator for holographic display,[11] and another 3-D display paper exploring the use of multiple projectors to enhance the viewing zones.[12] The top-cited paper investigated peak detection algorithms to identify multiple surfaces in single-photon counting 3-D LiDAR for foliage penetration.[13] The remaining papers in the top-cited list addressed a variety of topics: the combination of coupled wave analysis and evolutionary algorithms to optimize 3-D solar cell structures,[14] coding of range gates for 3-D LiDAR imaging,[15] reconstruction of 3-D images from diffraction patterns using deep-learning convolutional neural networks,[16] coding 3-D imagery in sparse phase-only masks,[17] interband cascade device structures for mid-wavelength infrared detection,[18] and modeling chromatic aberration in pulse compression for 5 petawatt femtosecond pulsed lasers.[19] Half of these papers were published as part of special sections, but only two were published with open access. If they had been open access articles, I suspect they may have exhibited a much higher download count.

From an operational perspective, the journal appears to remain successful, although I am a little concerned with a few performance indicators. In 2018, *Optical Engineering* published 670 papers and received 1481 submissions, representing a 6% decrease in publications back to the level of 2016 and an acceptance rate of 43% for regular papers. Roughly 12% of the publications were open access papers and 15% were part of special sections, both a little lower than 2017. Average manuscript decision times increased very slightly to 40 days, the two-year impact factor decreased from its 15-year high to 0.993, and the five-year impact factor increased to a new high of 1.032. I am a little concerned with the slight downturn in the two-year impact factor coupled with the increase in acceptance rate and decision time as these indicate that we may need to renew our focus on thorough and efficient reviews to keep our publications current and of the highest quality.

While *Optical Engineering* published a large number of high-quality papers in 2018, the small sampling extracted from the top-ten download and citation lists provide some

excellent exemplars and good reading to get a sense of emerging developments in the optical engineering field. If you missed them during the course of the year, I encourage you to look them up in the SPIE Digital Library from the bibliography below. Also, I invite you to continue submitting excellent papers like these.

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Editor-in-Chief

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