circuits (which use both p- and n-type OECTs)[8].

Huang and colleagues' combination of a vertical OECT architecture with new electro-active and ion-permeable semiconducting polymers results in the highest reported transconductance per unit area of the channel material in an OECT device, and the highest current in the 'on' state. More importantly, the authors' vertical n-type OECTs outperform any previously reported n- and p-type OECTs, when used in complementary logic circuits.

OECTs have great promise for biosensing applications, in which biomolecules are commonly anchored to either the gate or the channel[2]. However, the gate and channel are buried in the vertical architecture, so new circuit designs will be needed to use such OECTs in biosensors. Moreover, further investigations are needed to show that this architecture works for a wide range of semiconductors; to fully understand how the molecular structure of semiconductors affects device performance; to further simplify the fabrication protocols; and to incorporate this architecture into large-area circuits. Nevertheless, Huang and colleagues' devices highlight the potential of vertical OECTs to overcome the present spatial and temporal limitations of organic electronics — thereby enabling logic circuits to be reduced in size, as is needed for future wearable and bio-inspired electronic devices.

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Scientific community

Self-publishing is common among academic editors

Molly M. King

An analysis of the publication records of academic editors shows that one-quarter of them publish 10% of their own papers in the journals they edit and reveals that fewer than 10% of editors-in-chief are women.

Journal editors determine which manuscripts go out for review, which reviewers are chosen and how reviews are adjudicated and processed. Consequently, they exercise considerable influence over scholars' careers. Although high-profile scientific journals tend to have full-time editors, most journals are edited by academics. Writing in *Nature Human Behaviour*, Liu *et al.*[1] present a comprehensive analysis of the publication records of academic editors. Their results suggest that the prevalence of self-publication could exacerbate inequalities in academia.

The authors gathered data on names and affiliations for 103,000 editors of 1,167 journals published by Elsevier, across 15 disciplines and several decades. Although these data came from the editorial-board web pages of Elsevier, similar trends would be expected for other publishers. The researchers matched this information to publication records in the Microsoft Academic Graph (MAG; a database of scholarly publications) for 21,600 of their editors. This enabled them to determine the editors' affiliations, publication history and academic age (the number of years since first publication).

The resulting data set is of unprecedented size for an investigation of editorial self-publishing, and forms the basis of the first cross-disciplinary study of this type that has international reach. One concern is that editors that Liu and colleagues were able to match to publications are disproportionately productive (these individuals would be more likely to appear in MAG), but an analysis by the authors found that this did not substantively affect the results. However, the authors did not test whether this sampling approach affected their results related to gender.

Liu and colleagues asked what makes editors distinct from other academics. When they compared editors' publication records with those of other academics during the year before the editors took up their positions, they found that the productivity gap had increased fourfold since 1980. As of 2017, people who were about to become editors had collaborated with more than six times as many people as had an average academic in the same discipline and with the same academic age. In addition to being collaborative and productive, the authors found that publishing work that is highly impactful and well-cited seemed to matter more in 2017, compared with 1980, in terms of becoming an academic editor.

The researchers also looked at whether practices differ by gender, using a gender classifier to assign first names. Such classifiers are imperfect[2], and this is one limitation of the study — use of the classifier led to the exclusion of more than 20,000 editors from much of the analysis, because their gender could not be identified from their first name. Moreover, classifiers enforce an artificial binary categorization of gender. Nonetheless, they are a powerful tool with which to understand gender inequalities on a large scale. The authors found that editors are disproportionately likely to be men; only 14% of editors and 8% of editors-in-chief are women, compared with 26% of authors in the publication records in MAG.

Women and men have comparable levels of productivity and impact during the years in which they are active in research[3], so this cannot account for the difference. By comparing editors and academics of the same discipline and academic age, and with the same impact and level of productivity, Liu *et al.* showed that the gender disparity between editors (although not the greater disparity between editors-in-chief) can be explained by differences in career length. Indeed, previous work has shown that because women are more likely than men to leave the academic workforce when they become parents[4], they are less likely to accumulate sufficient publications and citations in their careers to become editors. Because women also have, on average, more university-service commitments (such as serving on committees or being involved in faculty governance) and care-work commitments than do men[5], they might be reluctant to accept the extra responsibilities of editorial work.

The authors next demonstrated that self-publishing is common — nearly one in four editors publishes at least 10% of their own papers in the journal they edit (Fig. 1). The group noted that the self-publication rates of journal editors were higher than the publication rates of other academics and members of the editorial board of the same journal. Neither the previous level of productivity of these individuals nor the culture of the journal explained the high self-publication rates. Liu and colleagues compared the publication rates of the editors before and during their editorships, and also compared the rates with those of academics who were similar in terms of their previous productivity. In these analyses, the authors found evidence that becoming an editor changes the behaviour of many academics. An alternative explanation for these results, however, might be that individuals with aspirations of self-publication self-select into editorial positions. Liu and colleagues' analyses cannot determine the root cause of self-publication.

The authors find no gender difference in the overall tendency of editors to self-publish at the highest rates. However, they do find that, in the five years after becoming editors, men's self-publication rate and number of self-publications both increase significantly more than do women's.

The dynamics of editor self-publication, as well as the over-representation of men among editors, might have important consequences for which science gets published. There are known differences in the choices that men and women make about research topics and the types of methodology they use[6]. The gender difference in number of self-publications by top self-publishing authors implies that topics studied by men and women are added to the scholarly literature to different extents. Future research could explore the effects of differential editorial selection and self-publication on the scientific literature.

Liu and colleagues' findings are also notable for their implications for researchers' careers, although the paper does not measure these directly. In print journals, in particular, opportunities to publish are strictly limited – if an editor publishes their article in the journal, this eliminates an opportunity for another colleague. And because editors are often compensated for their effort (see go.nature.com/3dahh7s), the imbalance further widens the gender disparity in academic pay[7] and disproportionately provides leadership opportunities for men.

The current study implies that there is a need to create guidelines for journals in selecting editors. Besides obvious steps such as recruiting more women, there are other, more-experimental, possibilities. For example, lottery randomization[8] could de-emphasize productivity, connection and citation, making space for more women in the editorial ranks. If an editorial applicant meets a certain set of pre-established criteria, a lottery could then select the editor from among the candidates. Whatever the mechanism, diversifying appointed editorial positions requires an active commitment on the part of publishers.

Liu *et al.* did not investigate whether self-published papers were managed by the author–editor or by a different editor, which is a limitation of the study. However, this also mirrors real life – editorial processes for handling papers are rarely apparent. Establishing transparent guidelines for editor self-publication could increase both trust in self-published articles and equity among journal authors. The Committee on Publication Ethics recommends "informing readers about steps taken to ensure that submissions from members of the journal's staff or editorial board receive an objective and unbiased evaluation" (see go.nature.com/3gjttfn). Journals should continue to implement these steps, stating clearly that editors who are authors of a given paper will not be involved in decisions related to its publication, and describing how the review process will be adapted accordingly (see go.nature.com/3faspef).

Future studies should look at the variation in journals' policies and their influence on editors' self-publishing patterns. By implementing procedures for the selection of editors and publication of papers that have less potential for bias, academia can move closer to increasing gender parity and scientific transparency.

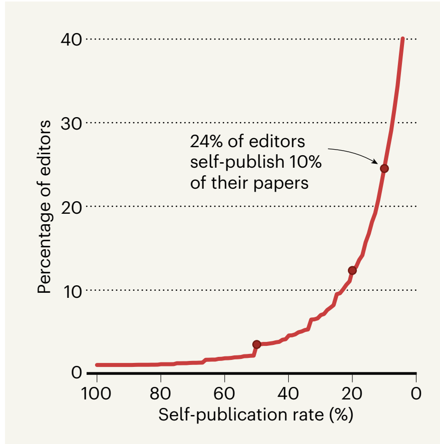

Figure 1 | Percentage of academic editors who self-publish at given rates. Liu *et al.*[1] find that 24% of editors of Elsevier journals self-publish 10% of their papers in the journals they edit; 12% of editors self-publish 20% of their papers; and 3% self-publish one out of every two papers. (Figure adapted from Fig. 3a of ref. 1.)

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Condensed-matter physics

Broken mirror symmetry boosts current conversion

Angelo Di Bernardo

The intrinsic structure of a material called a chiral superconductor enhances the separation of charge carriers, transforming an electric current in a way that could change the future of memory storage at low temperatures. **See p.479**

Digital information is usually encoded by controlling the flow of charge carriers, such as electrons, through materials. But a special type of electronics, called spintronics, uses electrons' spin – their intrinsic angular momentum – as well as their charge. In spintronics, a charge current is used to generate a spin current through a process known as charge-to-spin conversion, which usually involves an interaction that arises from an electron's spin and its orbital motion[1,2]. This 'spin–orbit interaction' deflects an injected electron depending on the orientation of its spin, resulting in a spin-dependent voltage that is perpendicular to the flow of injected charges. On page 479, Nakajima *et al.*[3] report that, in a material known as a chiral superconductor, this voltage is 1,000 times larger than expected, owing to the material's intrinsic spin-selectivity mechanism, which enhances the effect of the spin–orbit interaction.

The coexistence of different properties in the same material often leads to the discovery of extraordinary physical effects. Chiral superconductors have a chiral crystal structure (one that cannot be superimposed on its mirror image) and zero electrical resistance at very low temperatures. Nakajima *et al.* injected an