



COMMUNICATIONS PHYSICS

EDITORIAL

Introducing *Communications Physics*

Welcome to the inaugural edition of *Communications Physics*. Our ambition is to provide a venue for physicists, regardless of their specialised topic, to publish and access high-quality research that stimulates new thinking in the field.

The 2016 Nobel Prize in Physics was awarded to three scientists 'for theoretical discoveries of topological phase transitions and topological phases of matter'.

The three laureates won the prize because they used topological concepts in physics, and by doing so they paved the way to an entirely new era in the study of the state of matter. Topology is a concept that until recently was confined to the realm of mathematics; so it may sound curious to start with topology to introduce *Communications Physics*, a new selective multi-disciplinary physics journal from Nature Research.

And yet, within a very short time, topology has become a new lens through which to look at condensed matter and has gone well beyond this field within physics. It is now a common theme across a wide range of research areas, including optics, materials science, quantum physics, and cosmology. Most of all, it gives a great example of cross fertilisation among disciplines.

Our goal is to disseminate research widely to specialists and to anyone interested in our content, with the hope to open a dialogue that encourages new ideas relevant for the whole physics community.

The need for fostering connections between the multiple branches into which physics has evolved since the Newtonian era has never been higher. And so the time seems ripe to launch a broad-scope physics journal within the Nature Research family. *Communications Physics* will provide a venue for the diverse

specialist fields within physics to be read by a general audience. In this way, we hope to

inspire new connections across subjects that may have once seemed unrelated, to bridge the gaps and ultimately pave the way to new discovery.

Communications Physics complements the Nature family of journals in many ways. First of all we offer a less selective journal compared to *Nature Physics*, opening the door for more exciting and significant—if potentially more specialised—findings to be published in a Nature Research journal. Secondly, our scope complements that of *Nature Communications*, whose continued success in publishing excellent research across the natural sciences inspired our journal's name. *Communications Physics* offers a forum exclusive to those topics whose central theme is physics and addresses a physics-specific audience. In common with *Nature Communications* and our sister journals *Communications Biology* and *Communications Chemistry*, *Communications Physics* is also open access. We believe that this publishing model supports our goal to disseminate research widely to specialists and to anyone interested in our content, with the hope to open a dialogue that encourages new ideas relevant for the whole physics community.

Being part of Nature Research comes with a degree of responsibility. Nature journals are well known for providing high quality peer review supervised by full-time, professional editors. *Communications Physics* will maintain the same standards of excellence expected from a Nature Research journal by having a dedicated team of professional in-house editors, all with a background in research and a passion for learning and advancing science. Our team will be joined by an Editorial

Board of equally dedicated practicing academics. Editorial Board Members will provide on-the-ground insights into their field of research and will engage with the community in a different way to professional editors. Most importantly Editorial Board Members will share the passion of in-house editors to serve the community by assessing, selecting and helping to improve the papers that the journal publishes. We see the shared editorial model as a mutual effort to learn from each other and to provide our authors and readers with an enhanced experience. Together we will form a team of experts to achieve excellence in both the communication of physics and editorial practices.

This shared editorial model differentiates us from other journals within Nature Research. We believe that the scientific community is best served by a range of diverse journals, with a breadth of editorial practices and publishing models, while still holding true to the ethics of fairness, transparency and efficiency towards the community they serve.

We are thrilled to see already such diversity in the very first articles published in the journal, a diversity that we hope will

continue as we grow. Fittingly perhaps, the central theme of the paper by [Loehr et al.](#) is topology. The authors apply it to colloids and demonstrate an equivalent to the quantum Hall effect for colloidal systems. Another mathematical concept, multifractality, is demonstrated in a single-layer graphene transistor, suggesting that [multifractality may be ubiquitous in transport properties](#) for low dimensional quantum condensed matter systems. [Lee et al.](#) describe a method to achieve oscillatory switching in a magnetic device by using spin-orbit-torque. [A detailed band structure mapping of phase change alloys](#) (commonly used as components for data storage in DVD and Blue-ray disks) is reported in the paper by [Kellner et al.](#) while a simple method for dual wavelength photoacoustic imaging, presented for tumour images in the paper by [Mark and collaborators](#), provides a powerful tool to study cellular and genetic processes.

More papers will be published in the following weeks and, as the journal evolves, we will also showcase review articles and commentaries. We hope that this content will appeal not only experts

in the field but also our less specialised readership.

Today marks the beginning of an exciting adventure for *Communications Physics*, one that we look forward to sharing with the whole physics community.

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