

Editorial

Open Access

Welcome to PMC Physics B

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Welcome to the first issue of *PhysMath Central (PMC) Physics B*, a new peer-reviewed international Open Access journal covering condensed matter physics and atomic and molecular physics. In order to maintain such a large scientific coverage we have two Editors and an Editorial Board containing a large number of subject specialists.

Why do we need a yet another new journal? Both condensed matter physics and atomic and molecular physics have already many (maybe too many) specialist journals. There are three key reasons why we think PMC Physics B is necessary.

First, the past twenty or thirty years have seen a significant change in the way in which the subject areas covered by *PMC Physics B* have evolved. The areas were perhaps seen to be growing apart, as specialist knowledge, different techniques and different problems have been splintering the subjects into a vast plethora of tiny parts. More recently, advances in subjects as diverse as Bose Einstein condensation, nanotechnology and quantum information have led to a reappraisal. The boundaries between fields such as superconductivity, quantum optics, non-linear physics - to name a few - have become significantly blurred. Maybe we can each learn from these different areas? Maybe the implications of our work are broader than we realize and can have an impact beyond the narrow confines of our own specialties (greater than those only of our specialist areas)? Certainly the dynamic growth areas of research are those that have an impact across many fields. It is to these subjects that we hope our new journal will ultimately provide its greatest impact.

Second, the internet has revolutionized the way we share information. The world-wide web allows for the dissemination of knowledge on a wider and far more interactive scale than was possible with the print medium. What we now need to consider is how this new, and potentially

disruptive, technology affects academic publishing. As well as providing access to the latest results and hot topics, we also need to consider the longer-term issues ensuring the quality, integrity and long-term preservation for posterity of the information, and allowing broad, continuing and equitable access to it.

Third, the open access movement in scientific publishing allows anyone in the world to find and read peer-reviewed, scientific articles, and to use their contents in the course of scholarship, teaching and personal inquiry. The movement has received support throughout the scientific community, because it frees access to knowledge and, as a result, should accelerate the pace of discovery while at the same time lowering the barriers to knowledge.

What do we mean by 'open access'? Each of these three points is – in our view – essential for an article to be termed open access:

- 1 – The article is universally and freely accessible via the internet without subscription barriers.
- 2 – The article is deposited and permanently archived in a number of national and subject repositories.
- 3 – The authors retain copyright of their articles and license the article under a Creative Commons license whereby they grant any third party the right to use the article freely, as long as its integrity is maintained and its original authors, citation details and publisher are identified.

PMC Physics B is a response to these developments. The challenge is to create viable publishing model that preserves the best of the academic publishing traditions while allowing the power of the internet to be harnessed for the public good. The parent publishing group, BioMed Central, has quickly established itself over the past seven years in the bio-medical field with a large number of open access journals. Also, because *PMC Physics B* does not have a background in printed journals, it should be easier to accommodate new kinds of information – dynamic links to databases, multimedia "figures" – in articles. In fact, we are already able to accommodate many different kinds of supporting information, such as audio, video, pdfs, databases or even interactive programs.

The question is *are authors going to avail themselves of such opportunities?* In the past, published articles contained just a summary of the analysis. Raw data and detailed analysis were not published, and independent readers did not have the capability to re-evaluate the data and conclusions of the manuscript. Should we change that, by depositing raw datasets and sufficient details, to allow independent analysis of our work?

Like all academic publishers, we are completely dependent upon the Editorial Board and the many individual researchers who referee the papers submitted, and we are grateful to them for

the care, efficiency and integrity with which they carry out these duties. Submitting, refereeing and reading articles should be made as easy as possible, using the power of the internet to the full. We hope that you find *PMC Physics B* essential reading in the future.

Stephen Buckman and Peter Hatton

Joint Co-Editors-In-Chief, *PMC Physics B*.