
Editorial

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Editorial

Through its peer-reviewed scientific publications, The Royal Society has been benchmarking original scientific research at the highest international level for many years. Hitherto, the record has been conveniently and neatly divided into publications devoted either to the physical sciences, including mathematics, or to the biological sciences. However, in recent times, it has been apparent that distinctive scientific challenges and opportunities exist at the interface between the major scientific monoliths. As a consequence, interdisciplinary, multidisciplinary and cross-disciplinary research is flourishing on a global scale as the methodologies of chemistry, computer science, materials science, mathematics and physics are employed to provide insight into the biological and medical sciences. Equally, a greater understanding of the biological template has considerable potential to facilitate advances in the physical sciences. Consequently it is appropriate, and timely, to launch *Journal of the Royal Society Interface*, as a mechanism for publishing papers from the spectrum between the physical and life sciences. Articles are welcomed on topics including biocomplexity, bioengineering, bioinformatics, biomaterials, biomechanics, biophysics, chemical biology, medical physics, systems biology, theoretical biology and tissue engineering.

Within this diverse range of topics, my personal experience is as a materials scientist who developed an early interest in the deformation and fracture of bone using microstrain-measuring techniques and associated fracture-mechanics analysis, but with an associated need to understand bone biology. From this base developed radical research on bone analogues, i.e. novel materials to replace or repair bone, based on the control of cell attachment, proliferation and extracellular matrix production on surfaces of appropriate chemistry, topography and mechanical property. Such cross-disciplinary research requires expertise in cell biology, biochemistry, materials science, mechanics and medical science, and it has culminated in current approaches to biomaterials and tissue engineering, which have the potential to change radically the prospects for regenerative medicine. This cross-disciplinary approach resonates across the spectrum of potential topics for the journal, with the expectation that combinations of scientific insights will be a common factor.

As Editor, I have the ambition that *Journal of the Royal Society Interface* will empower the advance of cross-disciplinary science. I recognise that our success will depend on the quality and impact of the submitted papers we publish; to this end, we shall continue the exemplary standards of peer review and rapid publication established by the other Royal Society journals. Hence, with my colleagues on the Editorial Board, I welcome the submission of articles, reports and reviews which contribute to the advancement of knowledge within the interface theme of the journal.

This first hardcopy issue incorporates the papers that we have already published online. We shall continue to publish papers individually following acceptance so as to achieve prompt dissemination to the community, with collected papers made up into issues of this scale.

William Bonfield, Editor