

60 Years of the IMA Journal of Applied Mathematics

In 1965, the one-year-old IMA launched the *Journal of the Institute of Mathematics and its Applications* to publish scientific papers in four issues a year, on topics representative of what might be called traditional British applied mathematics. Analytical methods, mostly asymptotic in nature, were applied to problems in theoretical mechanics, often in continuum mechanics. Almost all the papers were single authored by UK-based applied mathematicians. Sir James Lighthill¹ FRS, inaugural President of the IMA, made many contributions to the early volumes, predominately pieces that shed light on fundamental properties of wave motion and fluid mechanics.

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Nevertheless, the number of submissions to the *IMAJAM* has approximately quadrupled since the early 2000s to a steady state of about 200 articles a year. Our editorial process, overseen by a 30-strong board of international experts (see academic.oup.com/imamat/pages/Editorial_Board), means that only a small fraction of these meet our stringent quality threshold and are ultimately published. We have three editors-in-chief: Demetrios Papageorgiou FIMA (Imperial College) and myself have been in post for over 20 years, and Darren Crowdy FIMA (also Imperial) joined us recently.

One big change has been the international spread of the journal. While still produced in the UK with the help of Oxford University Press (OUP), *IMAJAM* now has a truly international readership, with subscriptions held by libraries from across the globe. Papers also come from all over the world, with UK-based scientists now representing less than a third of all authors.

Another innovation has been the introduction of regular special issues. It is fitting that the first of these Issue 1 of Volume 70, was dedicated to the 60th birthday of Ray Ogden FRS, who had been the sole editor-in-chief of *IMAJAM* throughout most of the 1980s and 1990s. A second special issue to celebrate Ogden's 70th birthday appeared as Issue 5 of Volume 79. Indeed, Ray, who is known for his pioneering work in nonlinear elasticity and the mechanics of biological tissue, is a prime example of the kind of applied mathematician whose works fill our journal. We are constantly on the lookout for ideas for new such special issues.

Fast-forward to the present day. A look over the last few years of the journal shows published papers that straddle all areas of applied mathematics; not just mechanics, but neuroscience, complex media, socio-economic systems, inverse problems, data assimilation and theory of machine learning, to name but a few. This expansion of the journal's scope also reflects the evolution of applied mechanics as a discipline to encompass all the areas of natural science and human endeavour where mathematical models are applied.

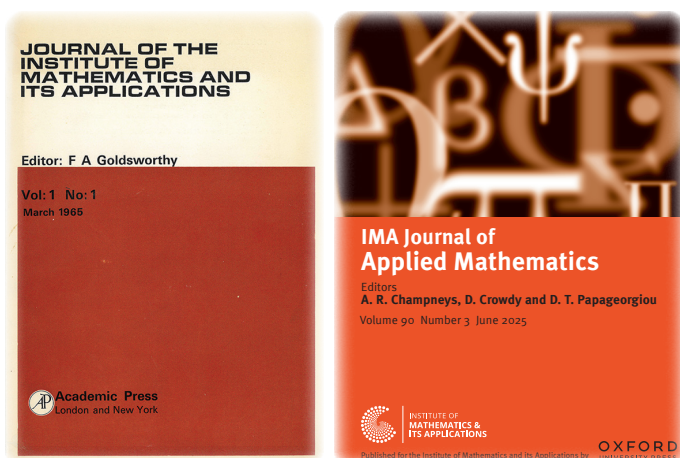
It would be fair to say that academic publishing is in the midst of revolution. There are many more hundreds of journals than there were in the 1960s. There are new modes of publication, and an increasing importance is placed on citation indices, 'altmetrics' and the like. Who knows where it will lead. But, with professional support from the IMA and OUP, the *IMA Journal* is well placed to respond to this changing landscape. For example, many universities that subscribe to the journal have a 'read and publish' deal for Open Access publication.

Fundamentally, as a Board, we firmly believe there will always be an important place for archival journals such as *IMAJAM* that publish high quality applied mathematics research that is likely to stand the test of time.

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Notes

- 1 A special issue of the journal on *Lighthill's Legacy*, based on the meeting held in Manchester on 13 September 2024, is currently in preparation and should appear in early 2026.



The first journal from 1965 and this year's IMAJAM

After six years, the journal doubled its size, and was published in two annual volumes from 1971 to 2000. Hence the current issue is in Volume 90, not Volume 60. Complementing its traditional strengths in analytical studies, papers began to appear in the fledgling area of numerical analysis; growing to more than half of the copy by the mid 1970s. It is worth mentioning early gems on Broyden's update methods for root finding and key results by the Dundee group on the mathematics of the finite element method, for example.

As a consequence, in 1980 the journal was split into the present *IMA Journal of Applied Mathematics* (referred to as *IMAJAM* in what follows), covering the traditional analytical areas; and the 'specialist' *IMA Journal of Numerical Analysis*.

After the split, the main thrust for *IMAJAM* once again became continuum mechanics, together with some early work on what one might now call applied dynamical systems. The early dominance of fluid mechanics began to wane, and there were proportionately more papers in solid mechanics and elasticity theory.

As we approached the new millennium, demand was managed by further spawning new specialist IMA journals. There are now eight separate academic journals in the IMA family (see ima.org.uk/ima-journals). The thrust of the *IMAJAM* remains areas that are not represented by these specialist journals, new and emerging areas of applicable mathematics, and mathematical methods and analyses that span more than one area of application.