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Noise worth listening to

Fluctuation and Noise Letters
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A surge of interest in systems on the small scale is to be found everywhere in the scientific and popular literature. This interest arises from the context: many of us find biological systems and devices on the nanoscale to be intriguing or fascinating. The enormous progress in the understanding of the nanoscale world has been fuelled by developments in fields such as nanotech-



nology, protein folding, molecular motors, colloidal chemistry and self-assembly, to name but a few. In turn, the rapid strides in these fields are made possible by the vastly improved ability to study and manipulate systems on such a small scale, by the ever-growing computational power to simulate their behaviour accurately, and by the parallel development of new theoretical tools.

Of central interest in much of this research is the observation that on this small scale the effects of fluctuations become significant and even crucial. And, far from being a disturbing side-effect, it is now clear that noise may have an important or even an essential role in the operation of small-scale devices, leading to organized behaviour that would not occur in the absence of noise. One example is the world of molecular motors, in which the energy in random fluctuations is harnessed to produce directional motion of proteins along microtubules.

It is not surprising then that a search on the keywords 'noise' and 'fluctuations' yields tens of thousands of research articles each year in the physical, chemical and biological literature. Even if the search is narrowed to the half-dozen most widely read physical journals (such as *Physical Review*, *Physica* and *Europhysics Letters*), there are still hundreds if not thousands, and a considerable subset of the papers deals with the constructive role of noise. Most of those involved in research on noise and fluctuations in this context have had to search much more narrowly, usually by the names of authors we are familiar with, to keep up with this literature. This is not a particularly



effective method, and it certainly doesn't encourage new players into the field.

The journal *Fluctuation and Noise Letters* provides a forum for concentrated publication of this literature. Before its appearance on the scene there was not one journal in which the community of 'noise scientists' (in the sense described above) could converge; it fills an important and previously unoccupied niche. The editors are an outstanding multidisciplinary and multicontinental group who have a serious scientific interest in working towards the journal's success.

Fluctuation and Noise Letters is only a little over a year old, and yet has already attracted many publications from a distinguished set of authors. Practically every paper so far has interested me. It offers an appealing variety of papers (letters, current opinions and reviews), is highly effective, efficient and selective in its peer-review process, and is attractive in format, including the easy inclusion of colour figures. Although paper copies are available, the electronic accessibility is most attractive. Now those of us who find this an extremely useful and interesting venue must encourage our libraries to subscribe. ■

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