



Editor's Desk

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The year 2020 occupies a special significance in the history of the world. We all have lived through this surreal year as the Covid-19 pandemic, named unusually for the year when it struck the world, shut the entire world for a while and shook every individual directly or indirectly. Surprisingly, the show has gone on. We all have responded positively. The technology has bridged the gap between individuals even as social distancing was practised. The world produced food, made medicines, and conducted its business, albeit not as usual. And vaccines for SARS-CoV2 are also on the horizon. Our own Institution, IISc, responded to the pandemic well. It took care of its students when they returned to the campus in batches. It took care of the staff and faculty, and their families. Even though experimental work in the laboratories has been affected badly, the rest of the work has gone on. Our classes swiftly turned to the online mode. We conducted our interviews for research students online. The new students began their first semester online without stepping into the campus. Publications, patents, online symposia, and other research activities continued unhindered. Most importantly, IISc responded with timely innovations on several fronts: diagnostics and surveillance, modeling and simulation of the spread of Covid-19, ventilators and oxygenators of various kinds, and also vaccine development. After all, it feels as though everything in 2020 went on like clockwork in a well-oiled machine despite the challenges posed by the pandemic. A well-orchestrated machine indeed has this uncanny ability to respond to disturbances.

Talking of a machine, some consider a single biological cell a *machine*. That is probably why we talk of cell mechanics. Cell's machinery comprises

various processes that include a powerhouse to carry out its activities; information and accessories to make proteins and to respond to situations; transport infrastructure to move molecules in, out and across; and the ability to change its shape, grow and divide. At the core of a cell is its own skeleton—the *cytoskeleton*. And there are motor proteins that act like drivers for some of the cellular processes. What we see in this issue, guest edited by Prof. Vaishnavi Ananthanarayanan, is a set of articles that touch upon some aspects of cytoskeletal mechanics.

For every view, there is often a counter-view. In an article published last year in the *Journal of Theoretical Biology* (477 (2019), pp. 108–126), challenging the reductionistic and deterministic views, Daniel Nicholson argues that a biological cell might not be a machine in the conventional sense of the word. After long persuasive arguments, he asserts that “The inescapable conclusion that follows from the analysis I have presented is that the cell can no longer be unproblematically conceptualized as a machine.” New evidence is emerging from the experimental studies that can track individual molecules moving about inside a cell. New theories are being proposed to explain the stochasticity and nonlinearity that is innate to the functioning of a cell. I hope there is enough in this issue for readers to ponder.

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