

# From the Editor's Desk

Planning for the centenary celebration of the Institute is on. The Journal, a bit younger than the Institute, should have special contents in a centenary issue. A proposal being considered is to have a refreshing departure from the regular format and include in this special centenary issue select papers of archival value published by the Institute research community during the first few decades after the Institute came into existence. It is planned to constitute a special committee to identify these rare quality papers. Copyright issue will have to be addressed before these papers are reproduced in our Journal. Hope our efforts in this regard will bring out an issue which will make the readers nostalgic about the top quality research work which was carried out at the Institute during the first half-a-century of its existence.

**L. M. Patnaik**  
Editor

## Editorial

The focus of this third issue of the multidisciplinary reviews Journal of the Indian Institute of Science is the same as that of the first issue (Vol. 87, No. 1, Jan.–Mar., 2007). In view of avoiding any confusion in archiving and referring, the order of “nano” and “micro” is switched in the title of the theme. Thus, the focus of this issue is “Micro and Nano technologies” instead of “Nano and Micro technologies”. What’s in a name? Clearly, the title is immaterial for these two issues whose articles have spanned a wide spectrum of topics related to the two exciting technologies. But is there any difference between micro and nano technologies? The three orders of magnitude in size between the two would indicate that there ought to be some differences. And there are. But there are also similarities that tie both the subjects together.

One significant reason to see the nano and micro technologies under a single umbrella is the fact that the fabrication and characterization equipment needed for both is almost the same. Another equally significant reason is that the two technologies are enabling each other. The understanding of the behavior at the nano scale alone would not make the design and physical realization of a micro or larger sized integrated system possible. Likewise, the development of miniaturized systems would rely upon thorough understanding of the behavior at the smaller size scales than the system. Thus, the two technologies are intrinsically tied to each other. Just as it is happening around the world, much collaboration exists among the researchers working in both areas in the Indian Institute of Science. The authors and groups represented in this and the first issue are by no means exhaustive. On the contrary, this represents a very thin slice of a much larger group of people working in these two areas within the Institute. The time and space constraints and the coordination required in bringing the two issues are the reasons for limiting it to a dozen articles. I wish there were more! I also hope that this journal would return to this topic a few more times in future. The efforts are already underway towards bringing another issue next year under the guest-editorship of a distinguished colleague of the Institute.

There are five review articles in this issue. The review of DNA amplification chips by Sudip Mondal and V. Venkataraman and the review of high-resolution micromachined accelerometers by Girish Krishnan et al. underscore the multidisciplinary nature of the efforts in realizing a product in the micro technology. Liudi Jiang and S. Mark Spearing’s article emphasizes the importance of materials in the miniaturized systems. Krishna C. Saraswat and his co-researchers ably review a segment of the future of nanoelectronics. Pulak Kumar Ghosh and Deb Shankar Ray’s detailed review of the energetics of quantum ratchet motion concludes this issue.

As in the first issue, the explanatory notes in the margins clarify the words that are not widely familiar to all. I hope that these, together with the elaborate reviews and the extensive bibliography, would make the topics covered here readily accessible to the research community at large.

I thank all the authors and reviewers for sparing their valuable time. I also thank the editorial assistant, Ms Kavitha Harish, for her promptness and efficiency in attending to the matters concerning this journal.

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