Editorial

Biman Nath, Associate Editor

It was around a century ago that astronomers first suspected the presence of a kind of matter that does not radiate light, and yet make up a substantial portion of the total mass budget of the universe. In a way, one could describe the last ten decades in astronomy as ‘one hundred years of dark matter’. Normally we detect the presence of matter in the universe by the light it either radiates, or the light it absorbs from a background source of light. In the case of dark matter, we detect its presence through its gravitational pull on objects. Initially, the data were sparse, and the interpretations, not so straightforward. However, in 1970s, a maverick young American woman brought to light some unshakable evidences for dark matter. Her work stands tall as one of the most remarkable achievements in astronomy during the last half century.

We feature Vera Rubin’s work in this issue of Resonance with a general article that not only describes why astronomers adopt the unlikely hypothesis of a matter that does not radiate, but also tells the story of how scientists have been hunting for this elusive matter. In the Classics feature, we have reprinted an evening lecture that Vera Rubin gave in 1985 at New Delhi. It describes in a lucid language what her painstaking research implies.

Apart from the remarkable achievements of Vera Rubin, there is yet another aspect that comes to mind, while reminiscing about her work. In an interview in later years, she once said that she wanted to work on something that others would be interested in, but not so interested that they would bother her. What she meant was that she wanted to work in a field of research that was not crowded, and in which there would not be any breathing space for her own thoughts. This is, unfortunately, a motto that has almost vanished in our age of big science and big, often multinational, projects. Everyone now wants to work on problems that every-
one else is interested in. Otherwise, one’s citation index suffers, and so does one’s prospect of being recognized and appreciated by their peers. We hope that the articles in this issue on Vera Rubin’s work would convey to the budding scientists of future that it is perfectly fine to work on problems that few people are interested in, as long as the problem matters. A scientist’s work that is carried out in some measure of isolation (although not total isolation, which would be counter-productive) need not be looked down upon as a life spent in ‘one hundred years of solitude’.

We continue with our series of classroom demonstration of fluid instabilities, this time with a ‘salt oscillator’. As usual, the article comes with a detailed description of the ‘recipe’ for the experiment that the readers can try out on their own.

We also feature an interview with Gary Ruvkun, whose work on microRNA has revolutionized our understanding of gene regulation.