

Editorial

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Scientists often try out what is called a back-of-the-envelope estimate before plunging headlong into a detailed calculation. A quick estimate can inform them of the relevance or importance of different aspects of the phenomenon under consideration. Sometimes a quick estimate is all that one can do.



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An article in this issue on the recent landing of the spacecraft Rosetta-Philae on the comet 67P/C-G brings out the importance of such simple estimates. The author shows with simple dimensional arguments how one can estimate, for example, the time taken by the spacecraft to bounce on the surface of the comet, or why the surface of the comet is rough and not spherical. What makes a large planet spherical and the surface of a small asteroid or comet so rugged? The answer lies in comparing gravity with other (electromagnetic) forces that bind these objects. The article shows how simple estimates can inform us about the average properties of objects.

Sometimes averages turn out to be important after all. Although we often think that being an outlier in a sample would make one more attractive than the average, it appears that being average can make one just as attractive. An article in this issue on different types of faces of people asks a deceptively simple question: what makes certain faces more attractive than others? It turns out that average faces are deemed attractive. The question arises, what makes them so?

But when it comes to scientists, outliers clearly attract more attention. This issue features the legendary probability theorist Joseph L Doob. Being a prodigy, he was clearly an outlier among mathematicians. His career was also shaped by events far from average. The accompanying biographical sketch narrates how the quirks of wartime economy forced him to choose statistics as a topic of research and how he went on to lay the foundations of modern probability theory.

When some scientists strive to stay above the noise of the average, others design spaces to cut out the noise altogether. An article in this issue discuss the ideas that can help us live in a noise-free environment, and an interview with the author, M L Munjal, talks about his life and work.

