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M&S Colloquium

Cooperating with Cheaters Around: New Insights into an Old Problem

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Wednesday, 25 January 2006, 3:00–5:00 PM

Sir C. V. Raman Auditorium, Department of Physics

- two 45-minute sessions separated by a tea break ●

Cooperation between individuals as well as cooperation in large groups is widespread in the biological world ranging from bacteria to humans. Equally widespread is the act of cheating. A cheater is an individual who does not contribute to the cooperative act but benefits from it. Since cheaters get a more favorable cost-benefit ratio than an average cooperative individual, the cheating trait should spread in the population driving cooperation to extinction. However, cooperation is seen to be stable in a large number of cases. Serious efforts to explain the stability of cooperation began in the 1960s with some major conceptual breakthroughs. But the last decade has given us many novel insights with model as well as empirical systems. The earlier attempts were to explain how altruists achieve better fitness than cheaters. More recent models show a stable coexistence of altruists and cheaters. A variety of modeling approaches have been employed to address the problem ranging from spatial stochastic simulations to game theory. Almost all of them seem to increasingly converge on the conclusion that wherever there is cooperation cheaters will exist, but they need not always drive cooperators to extinction. Co-existence appears to be the rule rather than the exception.

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Professor Milind G. Watve heads the Department of Microbiology, Abasaheb Garware College, Pune. A microbiologist by training (M.Sc., University of Pune, 1979), he has a Ph.D. in Ecology (Indian Institute of Science, Bangalore, 1994). His research interests range from purely scientific (sociobiology, evolutionary psychology, evolutionary epidemiology, wildlife ecology, microbial diversity, computational biology, animal cognition), to highly applied and technological (e.g., product development in diagnostics and medicine). He has to his credit over 40 well-cited publications in respectable journals, four patents, and many successfully commercialized technologies.

*What is perhaps most unique about Prof. Watve is his exceptional ability to motivate students (from senior school kids and undergraduates to Masters students) to do science, and to mould their creativity and drive into interesting biological research. During the past 12 years, more than 50 such students have done publishable/patentable work with him. He is also an ardent naturalist and science popularizer par excellence; he was one of the key figures in the Pune-based Friends of Animals organization for wildlife enthusiasts in the 1980s. He is also a Marathi author noted for his popular-level 5-volume encyclopedia of nature and wildlife called *Aapalee Srishtee Aapale Dhan*, and a collection of personal essays called *Aaranyaka*. He was recently felicitated by the Prabhakar Padhye Memorial Trust for his work as a science popularizer.*