



INDIAN INSTITUTE OF TECHNOLOGY MANDI

भारतीय प्रौद्योगिकी संस्थान मंडी

Institute Colloquium

“War and Peace: Conflict and Cooperation in a Tropical Insect Society”



**13th March,
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05:00 PM



**Auditorium,
North Campus**

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Centre for Ecological Sciences,
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War and Peace: Conflict and Cooperation in a Tropical Insect Society

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ABSTRACT:

Many insect species live in societies that parallel, if not better, human societies in the sophistication and complexity of their organization, communication, division of labour and even their caste system. How do these insects achieve such social complexity? How has natural selection favoured social life over solitary life? This is especially paradoxical because most individuals in the insect societies function as sterile slaves and help one or a small number of queens to reproduce. In my quest of the origins of sociality, I have focused on *Ropalidia marginata*, a primitively social wasp that appears to be on the brink of sociality. With warm temperatures and favourable conditions throughout the year, tropical southern India provides a perpetual stage for these wasps to play out the drama of war and peace. Perhaps the most significant message from my studies is that conflict and cooperation are intimately linked and maintaining a fine balance between the two is what social life is all about.





Prof. Raghavendra Gadagkar obtained B.Sc (Hons) and M.Sc. in Zoology from Bangalore University and Ph.D. in Molecular Biology from the Indian Institute of Science, Bangalore, India. During the past 40 years he has established an active school of research in the area of Animal Behaviour, Ecology and Evolution. The origin and evolution of cooperation in animals, especially in social insects, such as ants, bees and wasps, is a major goal of his research. By identifying and utilizing crucial elements in India's biodiversity, he has added a special Indian flavour to his research.

Gadagkar is now Professor and National Science Chair at the Centre for Ecological Sciences, Indian Institute of Science, Honorary Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore and Indian Institute of Science Education and Research, Mohali, and Senior Fellow, Zukunftskolleg, University of Konstanz. He has published over 400 research papers and articles and two books. His book entitled *Survival Strategies* (Harvard University Press, USA, 1997 and Universities Press, Hyderabad, 1998, since translated into Chinese, Korean and Kannada), explains advances in behavioural ecology and sociobiology to a general audience. His more technical book entitled *The Social Biology of Ropalidia* (Harvard University Press, USA, 2001) summarizes over twenty years of his research aimed at understanding the evolution of eusociality. His research work has been recognized by a number of awards including the Shanthi Swarup Bhatnagar Prize, B.M. Birla Science Prize, Homi Bhabha Fellowship, B.P. Pal National Environment Fellowship on Biodiversity, the Third World Academy of Sciences award in Biology, H.K.Firodia award, DSc (*hc*) of the University of Burdwan, West Bengal and Cross of the Order of Merit of the Federal Republic of Germany and the Distinguished Animal Behaviorist Award for Outstanding Lifetime Achievement in Animal Behavior by the Animal Behavior Society, USA (2021). He is an elected fellow of the Indian Academy of Sciences (Secretary, 1995-2000), the Indian National Science Academy (President, 2014-2016), the National Academy of Sciences, India, the Academy of Sciences for the Developing World (TWAS), International Member, National Academy of Sciences, USA, the German National Science Academy Leopoldina, the American Academy of Arts and Sciences, Fellow, American Association for the Advancement of Science, Past (Founder) President, Indian Society of Evolutionary Biologists (ISEB), Secretary General, International Council of Ethologists, and Affiliated Scientist Max Planck Institute for Animal Behaviour, University of Konstanz.

He is or has been on the editorial boards of several national and international scientific journals, including the board of reviewing editors of *Science*. He has delivered over

500 invited lectures in universities, institutes, schools and colleges in India and abroad. He was invited to USA as the Michener Lecturer and by the Royal Society to deliver a public lecture in London, on the occasion of India Day and has delivered plenary lectures at a number of national and international conferences. He is, or has been, a member of a number of national and international professional scientific bodies and government and non-government advisory committees including the International Council for Science (ICSU), the jury of the Einstein Foundation Award, Berlin, and the Scientific Advisory Committee to the Cabinet, Government of India.

As the founder chair of the Centre for Contemporary Studies, Gadagkar initiated a new experiment that endeavours to engage some of the best practitioners of different disciplines in the human sciences, such as philosophy, sociology, economics, law, literature, poetry, art, music, cinema etc. and aims to forge meaningful interaction between the natural and human sciences with special focus on understanding the diverse research methodologies of different disciplines and create opportunities to rethink the foundations of our own disciplines.

His recent book “*How to Design Experiments in Animal Behaviour: Cutting-Edge Research at Trifling Cost*” was serialized in *Resonance-journal of science education* and has now been published by the Indian Academy of Sciences, Bangalore, as an [open access e-book](#). Gadagkar writes a fortnightly column in *The Wire Science* entitled [More Fun Than Fun](#), (also translated into Kannada) conveying the spirit and joy of science with a wide audience.

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