London, 1936, A155, 447; Al. Proca, *J. Phys Rad*, 1936, 7, 347.

34 Wigner, E., On unitary representations of the inhomogeneous Lorentz group, *Ann Math*, 1939, 40, 149.

35 Quoted in ref. 13.

36. For quantum-mechanical purposes, one has to deal with the group $SL(2, C)$, the universal covering group of the HLG, and its subgroups.

37 Harish-Chandra, *Proc Roy Soc. London*, 1947, A189, 372, Gel'fand I. M. and Naimark, M A, *Izv Akad Nauk. SSSR*, 1947, 11, 411.

38 Bargmann, V., *Ann Math*, 1947, 48, 568

39 Dirac, P. A M, *in RMP*, p. 592.

40. Wigner, E P., Invariance in physical theory, *Proc. Am. Phil. Soc.*, 1949, 93, 521, reprinted in SR, p. 8-9.

41. Bargmann, V. and Wigner, E. P., Group theoretic discussion of relativistic wave equations, *Proc. Natl. Acad Sci.*, USA, 1948, 34, 211

42 Newton, T D. and Wigner, E. P, Localized states for elementary systems, *Rev. Mod. Phys.*, 1949, 21, 400.

43. Inonu, E. and Wigner, E. P., On the contraction of groups and their representations, *Proc. Natl. Acad Sci. USA*, 1953, 39, 510.

44 Salecker, H and Wigner, E. P., Quantum limitations of the measurement of space–time distances, *Phys. Rev*, 1958, 109, 571; SR, pp. 62 ff

45. Wigner, E. P and van Dam, H., Classical relativistic mechanics of interacting point particles, *Phys Rev*, 1965, B138, 1576.

46 Wigner, E. P., The problem of measurement, *Am. J. Phys*, 1963, 31, 6, Remarks on the mind–body question, in *The Scientist Speculates* (ed Good, I. J.), William Heinemann, London, 1961; Two kinds of reality, *The Monist*, 1964, 48, (2), all reprinted in SR, pp 153, 171, 185.

47. London, F. and Bauer, E, *La Theorie de l'Observation en Mecanique Quantique*", Hermann et Cie, Paris, 1939

48. von Neumann, J, *Mathematical Foundations of Quantum Mechanics*, Princeton University Press, Princeton, New Jersey, 1955

49 Wannier, G in RMP, p 645.

50. SR, p 126.

51. Dresner Lawrence and Weinberg, A. M., in RMP, p. 747.

52. Bargmann, V. *et al*, in RMP, p. 588.

53. SR, p. 186

54 In addition to the articles included in SR, see also Houtappel, R M. F., van Dam, H. and Wigner, E. P., The conceptual basis and use of the geometric invariance principles, *Rev. Mod. Phys*, 1965, 37, 595.

N. Mukunda is in the Centre for Theoretical Studies and Department of Physics, Indian Institute of Science, Bangalore 560 012, India.

INDIAN INSTITUTE OF SCIENCE
Bangalore 560 012

Postdoctoral Research Associateships in Life Sciences and Biotechnology
(A DBT-sponsored programme)

Applications are invited from candidates with PhD in biological, chemical or physical sciences, or MD, for the award of temporary Research Associateship (maximum duration 2 years) to carry out research in frontier areas of biology in the Division of Biological Sciences at IISc under the DBT-sponsored postdoctoral programme. Candidates who have submitted their theses are also eligible to apply, but they may be appointed as Provisional Research Associates till they obtain the degree. Minimum consolidated emoluments for Research Associates will be around Rs 4,000 p.m.

Candidates should apply on plain paper, giving (1) biodata, (2) a summary of the PhD work, including the list of publications (reprints if any), (3) two reference letters, from the supervisor and from persons familiar with their scientific work, and (4) an undertaking that they will continue with the training programme for its duration.

After initial screening, candidates will be called for an interview at IISc, Bangalore, in the third/fourth week of September 1995. The PDF programme will start from 1 October 1995. Send applications to Prof. K. P. Gopinathan, Convenor, DBT-PDF programme at IISc Chairman, Department of Microbiology and Cell Biology, Indian Institute of Science, Bangalore 560 002, to reach him before **10 September 1995.**