

# CURRICULUM VITAE

## Personal Informations

NAME : **Sadhan Kumar Adhikari**

DATE OF BIRTH : 02 January, 1948

PLACE OF BIRTH : Kharagpore, India

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## Academic Formation

-Ph. D. in Physics from the University of Pennsylvania, Philadelphia, Pa, 1969-1973.  
Adviser : Prof. Ralph D. Amado.

Title of Thesis : Low-energy behavior of few-body scattering amplitudes.

-Specialization in Nuclear Physics at the Saha Institute of Nuclear Physics of the University of Calcutta, Calcutta, India, 1968-1969.

-M. Sc. with "First Class" in Physics with specialization in Nuclear Physics from the University of Calcutta, Calcutta, India, 1965-1968.

-B. Sc. with "First Class Honours" in Physics from the Presidency College of the University of Calcutta, Calcutta, India, 1962-1965.

## Scholarships and Fellowships

-John Simon Guggenheim Memorial Foundation Fellow, 1996.

-Post-doctoral Fellow of the Australian Research Grants Committee, Department of Applied Mathematics, University of New South Wales, Sydney, Australia, 1973-1976.

-Pre-doctoral Fellow of the National Science Foundation, University of Pennsylvania, Philadelphia, Pa, 1971-1973.

-Graduate Fellow of the University of Pennsylvania, Philadelphia, Pa, 1970-1971.

-Teaching assistant, Department of Physics, University of Pennsylvania, Philadelphia, Pa, 1969-1970.

-Post-M.Sc. Fellow of the Saha Institute of Nuclear Physics, Calcutta, Federal Government of India, 1968-1969.

-National Merit Scholar of Distinction of the Federal Government of India, 1962-1968.

## Present Positions

-Professor, Institute of Theoretical Physics, Universidade Estadual Paulista, São Paulo, SP, Brazil, since 1991.

-Research Fellow at the highest rank (rank 1A), Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brazil, since 1991.

## Previous Positions

-Associate Professor, Department of Physics, Federal University of Pernambuco, Recife, Pe, Brazil, 1976-1991.

## Organization of International Conferences

-Member of the International Advisory Committee of International Conference on Few-Body Problems, sponsored by the International Union of Pure and Applied Physics, since 1986.

-Few-Body XI, Tokyo, Japan, 1986; Few-Body XII, Vancouver, Canada, 1989; Few-Body XIII, Adelaide, Australia, 1992; Few-Body XIV, Williamsburg, Virginia, USA, 1994; Few-Body XV, Groningen, Holanda, 1997; Few-Body XVI, Taipei, Taiwan, 2000; Few-Body XVII Durham, NC, USA.

-Member of the International Advisory Committee of XVIIth European Conference, Evora, Portugal, 2000.

-Member of the International Advisory Committee of the third Asia Pacific Conference, Thailand, 2005.

## Referee of Journals

-The Physical Review and Physical Review Letters, Few-Body Systems, Journal of Computational Physics, Journal of Physics A and B, Physics Letters A and B, International Journal of Modern Physics, Computer Physics Communications, and Brazilian Journal of Physics.

## Research Interests

**Cold trapped atoms:** Bose-Einstein condensation, Numerical and variational solution of nonlinear Gross-Pitaevskii equation, Thermodynamical property of condensate, Hydrodynamic model of a degenerate Fermi Gas, Bright, Dark, and Gap Soliton, Collapse and Dynamical Stabilization, Formation of vortex.

**Quantum Mechanical Few-Particle Problem:** Formal theory of scattering, final-state interaction theory, importance of unitarity, connected-kernel few-particle scattering equations of Faddeev-Yakubovskii type, application to atomic and nuclear systems involving few particles.

**Nuclear Reactions and Scattering:** Coupled channel and many-body methods, connected-kernel multiparticle collision theory, reactions and scattering involving few nucleons, cluster model, antisymmetrized optical potential, resonance reactions and scattering, multistep direct and compound reactions, statistical theory and fluctuations, doorway states, preequilibrium reactions, giant resonances.

**Nuclear Structure:** Few-nucleon systems, D state of light nuclei, cluster models.

**Intermediate Energy Physics:** Hadron physics, three-dimensional relativistic - equations for two and three-particle systems.

**Atomic Scattering:** Positron and positronium (Ps) scattering using the close coupling approximation, variational methods, model electron-exchange potential, Ps-H, Ps-He, Ps-Ne, Ps-Ar, and Ps-H<sub>2</sub> scattering.

**Numerical Analysis:** Methods for scattering integral equations and equations of the Fredholm-type, separable expansion techniques and application to few-body physics, variational principles for the solution of scattering integral equations.

**Complex Systems:** Fractal and fragmentation, numerical simulation and experiment, scaling and universal behavior.

**Superconductivity and Superfluidity:** High-T<sub>c</sub> superconductivity, BCS Theory, BCS to Bose crossover problem.

## Thesis Guidance

-Doctorate

1. Lauro Tomio, defended (d) 1981.
2. Valdemiro de Paz Brito, d 1990.
3. Angsula Ghosh, d 1999
4. Puspitapallab Chaudhuri, d 1999

-Masters

1. Liberalino de Sousa Meneses, d 1981.
2. Francisco Luciano Viana, d 1981.
3. José Ricardo Almeida Torreão, d 1983.
4. Vania Elesabete Barlette, d 1988.
5. Kaline Rabelo Coutinho, d 1991.
6. Carlos Fernando de Araujo Junior, d 1993
7. Camilo Andrés Granados Buitrago, d 2009
8. Luis Ever Young Silva, d 2010