

RATINDRANATH AKHOURY

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Education:

Ph.D., State University of New York, Stony Brook, 1980.
M.S., Indian Institute of Technology, India, 1975.
B.Sc., Patna University, India, 1973.

Professional Experience:

1997- Professor of Physics, University of Michigan
1990-97 Associate Professor of Physics, University of Michigan
1986-90 Assistant Professor of Physics, University of Michigan
1985-86 Assistant Research Scientist, University of Michigan
1983-85 Adjunct Assistant Professor of Physics, UCLA
1982-83 Research Associate, UCLA
1980-82 Research Associate, University of Michigan
1980 Research Associate, SUNY, Stony Brook

Awards and Honors:

1975 J. N. Tata Endowment Scholar
1983-84 Outstanding Teaching Award, UCLA
1995 CEA, Saclay, France, Visiting Fellowship

Grants:

1985- U.S. Department of Energy, (with M.B. Einhorn, G.L. Kane, and Y-P. Yao)
1991 Natural Science Foundation, Conference Grant
1991 OVPR, University of Michigan, Conference Grant
1998 NATO Collaborative Research Grant (with J. J. van der Bij, University of Freiburg, Germany)

Teaching Experience (At the Faculty Level):

1983-85 Taught Undergraduate and Graduate Courses at UCLA
1985- Taught Undergraduate and Graduate Courses at the University of Michigan

Main Areas of Research:

Theoretical Physics

Theoretical Elementary Particle Physics

Ph.D. Students:

Frank Hansen: Graduated fall 1988. Presently Assistant Professor of Physics at the University of Tennessee, Martin

Thesis Topic: Radiative Corrections to the ρ -Parameter in the Standard Model for the Case of a heavy Top quark. (UM thesis 1988)

S. Titard: Graduated fall 1991. Presently Postdoctoral fellow at University Autonoma, Madrid, Spain

Thesis Topic: Adler-Bardeen Theorem in Non-Abelian Gauge Theories. (UM thesis 1991)

W. Loinaz: Graduated Summer 1995. Presently Postdoctoral fellow at Virginia Polytechnic Institute, Blacksburg

Thesis Topic: Exclusive Semileptonic and Radiative Decays of b- Baryons to Light Baryons . (UM thesis 1995)

A. Sinkovics: Graduated Summer 1996.

Thesis Topic: Selected Studies in Quantum Chromodynamics (UM thesis 1999)

Conferences Organized:

Co-organizer of Workshop on QED Structure Functions. New Techniques and Observables for High Precision QED held May 22-25, 1989, University of Michigan, Ann Arbor.

Co-organizer of Conference on Gauge Theories – Past and Future, held in Ann Arbor, Michigan, May 16-18, 1991.

Publications:

1. Mass Divergences of Wide Angle Scattering Amplitudes, Phys. Rev. **D19**, 1250 (1979).
2. Linear Deformations of the Prasad-Sommerfield Monopole, Phys. Rev. **D21**, 454 (1980) (with J. Jun and A.S. Goldhaber).
3. Fermionic Solutions in Gauge Theories and Their Quantum Corrections, Phys. Rev. **D22**, 959 (1980) (with W. I. Weisberger).
4. Self-Consistent Solutions for Fermions in Constant $SU(2)$ Gauge Potentials, Nucl. Phys. **B174**, 225 (1980) (with W. I. Weisberger).
5. Non-Linear Sigma Model as an Effective Lagrangian, Phys. Rev. **D25**, 3361 (1982) (with Y.-P. Yao).
6. On the Strong C.P. Problem in Models with Several Higgs Multiplets and Supersymmetry, Nucl. Phys. **B234**, 459 (1984) (with I. I. Bigi).
7. Duality and the Phases of Massive Gauge Invariant QCD, Nucl. Phys. **234**, 533 (1984).
8. On the Finiteness of θ_{QCD} Renormalization in Supersymmetric Theories, Phys. Lett. **135B**, 113 (1984) (with I.I. Bigi and H.E. Haber).
9. Anomalous Behavior of the Witten Index-Exactly Soluble Models, Nucl. Phys. **B246**, 253 (1984) (with A. Comtet).
10. Hidden Supersymmetry and Spectral Asymmetry: Anomalies and Fermion Number Fractionalization in Even and Odd Dimensional Space Time, Annals of Physics **172**, 245 (1986) (with A. Comtet).
11. Hidden Supersymmetry and Fermion Number Fractionalization, *Symposium on Anomalies, Geometry and Topology* 1985 (World Scientific).
12. Unitarity and Virasoro algebra for String Theory in the presence of background fields, UM-TH-86-2. Contributed paper to the International Conference in High Energy Physics 1986 (with Y. Okada).
13. Unitarity Constraints for String Propagation in the Presence of Background Fields, Phys. Lett. **B183**, 65 (1987) (with Y. Okada).
14. Strings in Curved Space-time: Virasoro Algebra in the Classical and Quantum Theory, Phys. Rev. **D35**, 1917 (1987) (with Y. Okada).
15. Conformal Symmetry, Unitarity, and Equations of Motion for Strings in Background Fields, Nucl. Phys. **B318**, 176 (1989) (with Y. Okada).
16. Quark mass effects and anomalies, Phys. Lett. **B211**, 156 (1988) (with F.J. Ynduráin).

17. η, η' Mixing and Anomalies, Phys. Lett. **B220**, 258 (1989) (with J.M. Frère).
18. Low energy effective Lagrangian Description of η and η' decays, Zeit. für Physik **C43**, 145 (1989) (with M. Leurer).
19. Meson and Glueball Decays, Invited talk at Conference: Intersection of Particle and Nuclear Physics, Rockport, ME 1988 (Published in Proceedings).
20. η, η' Mixing, Anomalies, and Glueball Decays, contribution to R. Brout Festschrift (1989) (with J.M. Frère, S. Titard and P. Castoldi).
21. Invariant Background Field Method for Chiral Lagrangians Including Wess-Zumino Terms, Annals of Physics **210**, 81 (1991) (with A. Alfakih).
22. The Non-Abelian Chiral Anomaly up to Two Loops: Analysis of Potential Infrared Ambiguities, UM-TH-91-21 (with S. Titard).
23. The Largest Time Equation and Long Distance Behaviour in Gauge Field Theories, *Gauge Theories – Past and Future*, 1992 (World Scientific).
24. The Cut-Off Dependence of the Higgs Mass in an Extension of the Standard Model, Phys. Rev. **D48**, 1252 (1993) (with B. Haeri).
25. The Cut-Off Dependence of the Higgs Mass, Proceedings of the DPF Conference 1992 (with B. Haeri, T.E. Clark, S.T. Love).
26. Exclusive Semileptonic Decays of B Mesons to Light Mesons, Phys. Rev. **D50**, 358 (1994) (with G. Sterman and Y.-P. Yao).
27. The Eikonal Wavefunction and Exclusive B Decays, Phys. Lett. **B337**, 176 (1994) (with I. Z. Rothstein).
28. On the Universality of the leading $1/Q$ Power corrections in QCD, Phys. Lett. **B357**, 646 (1995) (with V. I. Zakharov).
29. Exclusive Semileptonic Decays of B Baryons Into Protons, Phys. Rev. **D53**, 1416 (1996) (with W. Loinaz).
30. The Extraction of V_{ub} from Inclusive B Decays and the Resummation of End Point Logs, Phys. Rev. **D54**, 2349 (1996) (with I. Z. Rothstein).
31. Leading Power Corrections in QCD: From Renormalons to Phenomenology, Nucl. Phys. **B465**, 295 (1996) (with V. I. Zakharov).
32. Power Corrections in QCD: A Matter of Energy Resolution, Phys. Rev. Lett. **76**, 2238 (1996) (with V. I. Zakharov).
33. Leading $1/Q$ Power Corrections in QCD: Universality and KLN Cancellations, *Continuous Advances in QCD, 1996, Ed. M. I. Polikarpov*, (World Scientific) (with V. I. Zakharov).

34. On Infrared Cancellations in Inclusive Heavy Particle Decays, *Continuous Advances in QCD, 1996*, Ed. M. I. Polikarpov, (World Scientific) (with V. I. Zakharov and L. Stodolsky).
35. Power Corrections and KLN Cancellations, Nucl. Phys. **B516**, 317 (1998) (with L. Stodolsky and V. I. Zakharov).
36. A Quick Look at Renormalons, Nucl.Phys.Proc.Suppl. **54A**, 217 (1997) (with V. I. Zakharov).
37. Renormalon Variety in deep inelastic scattering, hep-ph 9701378 (with V. I. Zakharov).
38. The KLN Theorem and Soft Radiation in Gauge Theories, Phys.Rev. **D56**, 377 (1997) (with M. Sotiropoulos and V. I. Zakharov).
39. Renormalons and $1/Q^{*2}$ Corrections, In *Balholm 1997, Beyond the standard model V* 274 1997 (with V. I. Zakharov).
40. $O(N_f\alpha^2)$ Corrections in Low Energy Electroweak Processes, hep-ph 9707520 (with P. Malde and R. Stuart).
41. Power Corrections and the Gaussian Form of the Meson Wavefunction, Phys. Rev. **D58**, 013011 (1998) (with A. Sinkovics and M. Sotiropoulos).
42. The Physics of the Ultraviolet Renormalon, Nucl. Phys. B, Proc. Suppl. **64A**, 350 (1998) (with V. I. Zakharov).
43. On Non-Perturbative Corrections to the Potential for Heavy Quarks, Phys.Lett. **B438**, 165-172 (1998) (with V. I. Zakharov).
44. Cancellation of $1/M(Q)$ Corrections to the Inclusive Decay Width of heavy Quark, Phys.Rev. **D58**, 114025 (1998) (with A. Sinkovics and V. I. Zakharov).
45. A Novel Factorization for F_L in the large x limit, In *Brussels 1998, Deep inelastic scattering and QCD* 774 1998 (with M. Sotiropoulos and G. Sterman).
46. An Operator Expansion for the Elastic Limit, Phys.Rev.Lett. **81**, 3819 (1998) (with M. Sotiropoulos and G. Sterman).
47. A Nonlocal OPE for QCD Hard Processes in the Elastic Limit, hep-ph 9903442 (To Appear in Proceedings of DPF 99) (with M. Sotiropoulos and G. Sterman).

Books:

Gauge Theories — Past and Future (World Scientific, 1992) edited with B. deWit, P. van Nieuwenhuizen and H. Veltman.