# Curriculum Vitae

## David Collins

UT-Austin, Physics/Relativity
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Birthdate: 9 October 1966
Place of Birth: Worcester, South Africa
Citizenship: South Africa

## Education

**PhD**, expected by Dec 1997, University of Texas at Austin
Supervisor: Prof. Cécile DeWitt-Morette
Specialization: Mathematical Physics, Functional Integration

**BSc (Hons)**, April 1989, Rhodes University, Grahamstown, South Africa
Major: Physics   Minor: Mathematics   Awarded with distinction.

## Honors and Awards

1985 to 1987 Council for Scientific and Industrial Research (CSIR) Undergraduate Bursary
1988 Foundation for Research and Development (FRD) Honours Bursary
1988 Rhodes Foundation Scholarship

## Theses

- Collins, D. (Dec 1997), *Two-state Quantum Systems Interacting with Their Environments: A Functional Integral Approach*, PhD thesis.

- Collins, D. (1988), *The Use of Groups in Physics with Special Reference to SO(3) and the Euclidean Group*, Honours thesis, Rhodes University.

## Graduate Coursework at the University of Texas

- Classical Mechanics
- Quantum Mechanics I
- Statistical Mechanics
- Electricity and Magnetism I

- Relativistic Quantum Mechanics
- Topology for Physicists
- Relativity Theory I, Relativity Theory II
- Functional Integration and Stochastic Processes
- Method of Mathematical Physics (Differential Geometry and Functional Analysis)
- Algebraic Topology I, Algebraic Topology II
- Solid State Physics
- Quantum Field Theory I, Quantum Field Theory II

## Teaching Experience

- **Assistant Instructor**, Physics, University of Texas
  Fall 1993, Spring 1994, Fall 1994 to Summer 1997
  Supervisor: Prof Peter R. Antoniewicz
  Courses: Physical Science 303, 304

  First and second semesters of an introductory physics course for elementary education and other non-science majors. Duties included lectures, supervision of laboratory sessions, preparation and grading of homework, quizzes and exams.

- **Teaching Assistant**, Physics, University of Texas
  Fall 1991 - Spring 1993, Summer 1994
  Supervisors: Prof J. David Gavenda (Phy 102M), Prof Thomas A. Griffy (Phy 102N)
  Courses: Physics 102M, 102N Laboratories

  Laboratory classes which accompany introductory physics courses for non-physics and non-engineering majors. Duties included supervision of laboratory sessions, preparation and grading of final exams.

- **Grader**, Physics, University of Texas
  Summer 1993
  Supervisor: Prof Thomas A. Griffy
  Course: Physics 302M

  Second semester physics course for non-physics and non-engineering majors. Duties included grading of homework and exams.

- **Tutor**, Physics, Rhodes University, 1989 - 1991
  Course: Physics IP/IL

  Yearlong freshman level course for pharmacy and life-science majors. Duties included the preparation of material for and the supervision of tutorial sessions (discussion sessions).

## Work Experience

- **Physicist**, Optical Engineering Section, Division of Production Technology, CSIR (formerly the Council for Scientific and Industrial Research), Pretoria, South Africa, Jan 1988 - Mar 1988.

  Devised an algorithm for the computation of the point transfer function of an optical system.

## Publications

- Cartier, P., Dewitt-Morette, C., Wurm, A. and Collins, D. (1997). "A Rigorous Mathematical Foundation of Functional Integration." Contains an appendix on Functional Integration Over Complex Poisson Paths prepared by D. Collins. *Functional Integration: Basics and Applications* , Eds C DeWitt-Morette, P. Cartier and A. Folacci, (Plenum Press, New York, 1997)

## Conference Presentations

- Collins, D., Frescura, F.A.M. and Lubczonok, G. (1991). "Spinor Structures: A New Approach." Paper presented at the 26th Annual Seminar on Theoretical Physics, Bloemfontein, South Africa. Published in the conference proceedings.

- Collins, D. and Frescura, F.A.M. (1990). "Moving Frames and Accelerated Observers in Special Relativity." Paper presented at the 25th Annual Seminar on Theoretical Physics, Port Elizabeth, South Africa. Published in the conference proceedings.

## Workshops Attended

- NATO ASI Functional Integration: Basics and Applications held at Cargese, Corsica, France, September 1996. Funding provided by Collectivité Territorial de Corse.

## References

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