CURRICULUM VITAE
April 2011

A. BIOGRAPHICAL INFORMATION

1. Personal

James Greig Arthur	23 Woodlawn Ave. W.,	Dept. of Mathematics
May 18, 1944	Toronto, Ontario	Univ. of Toronto
Canadian	M4V 1G6	Room BA6258
	416-964-0975	416-978-4524

2. Degrees

Ph.D.	1970	Yale University
M.Sc.	1967	University of Toronto
B.Sc.	1966	University of Toronto

Thesis Title

"Harmonic Analysis of Tempered Distributions on Semisimple Lie Groups of Real Rank One".

Supervisor

Professor R.P. Langlands

3. Employment

1987-	University Professor, University of Toronto
1978-	Professor, Department of Mathematics, University of Toronto

Research and Teaching Appointments

1976-1978	Professor, Duke University
1972-1976	Assistant Professor, Yale University
1970-1972	Instructor, Princeton University

4. Honours

1974-1975	Yale, University Junior Faculty Fellowship (held at Institute Des Hautes Etudes Scientifiques, Bures- sur-Yvette, France).
1975-1977	Sloan Fellowship (held at Institute for Advanced Study, Princeton).
1980	Elected Fellow of the Royal Society of Canada
1982	E.W.R. Steacie Memorial Fellowship.

1983	Invited Lecturer for International Congress of Mathematicians, Warsaw.
1987	Synge Award (of Royal Society of Canada)
	Named "University Professor" at the University of Toronto.
1992	Elected Fellow of the Royal Society of London
1992	Aisenstadt Chair, CRM, University of Montreal
1993	Jeffery-Williams Lecturer, Canadian Mathematical Society
1997	CRM/Fields Institute Prize
1997	Henry Marshall Tory Medal, Royal Society of Canada
1998	Invited Lecturer for International Congress of Mathematicians, Berlin
1999	Faculty Award of Excellence, University of Toronto
1999	Canada Gold Medal for Science and Engineering, NSERC
2000	Wilbur Lucius Cross Medal, Graduate School, Yale University
2000	Guggenheim Fellowship
2001	Whittemore Lectures, Yale University
2002	Honorary Doctorate, University of Ottawa
2003	Elected Foreign Honorary Member, American Academy of Arts and Science
2003	Elected President of the American Mathematical Society
2003	G. de B. Robinson Award, Canadian Mathematical Society
2004	Killiam Prize

B. ACADEMIC HISTORY

6b. Research Awards

2010-2014	NSERC	$275,000
2005-2009	NSERC	$275,000
2002	Clay Mathematics Institute Scholar	
2001-2009	University Professor Grant	$10,000 per year
2000-2005	NSERC	$320,000
1999	Special University of Toronto Grant	$25,000
1995-2000	NSERC	$256,000
1992-1995	NSERC	$150,000
1989-1992	NSERC	$135,000
1986-1989	NSERC	$105,000
1983-1986	NSERC	$96,000
1980-1983	NSERC	$69,000
1979-1980	NSERC	$14,000

1976-1978	NSF	$20,000
1970-1976	NSF Summer Grants	
1987-1992	University Professor Grant	$5,000 per year

C. SCHOLARLY AND PROFESSIONAL WORK

7a. Publications

1. "The Selberg trace formula for groups of F-rank one", *Ann. of Math.* **100** (1974) 326–385.
2. "Some tempered distributions on groups of real rank one", *Ann. of Math.* **100** (1974) 553–584.
3. "A theorem on the Schwartz space of a reductive Lie group", *Proc. Nat. Acad. Sci.* **72** (1975) 4718–4719.
4. "The characters of discrete series as orbital integrals", *Inv. Math.* **32** (1976) 205–261.
5. "A truncation process for reductive groups", *Bull. Amer. Math. Soc.* **83** (1977) 748–750.
6. "Eisenstein series and the trace formula", *Proc. Sympos. Pure Math.* **33** (1979), Part 1, 253–274.
7. "A trace formula for reductive groups I: Terms associated to classes in $G(Q)$", *Duke Math. J.* **245** (1978) 911–952.
8. "Harmonic analysis of invariant distributions", *Proc. Conf. on Lie Theories*, Queen's University, (1978) 384–393.
9. "A trace formula for reductive groups II: Applications of a truncation operator", *Compositio Math.* **40** (1980) 87–121.
10. "The trace formula in invariant form", *Ann. of Math.* **114** (1981) 1–74.
11. "Automorphic representations and number theory", *C.M.S. Conference Proceedings* **I** (1980) 3–51.
12. "On the inner product of truncated Eisenstein series", *Duke Math. J.* **49** (1982) 35–70.
13. "On a family of distributions obtained from Eisenstein series I: Application of the Paley-Wiener theorem," *Amer. J. Math.* **104** (1982) 1243–1288.
14. "On a family of distributions obtained from Eisenstein series II: Explicit formulas", *Amer. J. Math.* **104** (1982) 1289–1336.
15. "A Paley-Wiener theorem for real reductive groups", *Acta Math.* **l50** (l983) 1–89.
16. "The trace formula for reductive groups", in "Journees Automorphes", Publications Mathematiques de L'Universite Paris VII, 1983, pp. 1–41.
17. "Multipliers and a Paley-Wiener theorem for real reductive groups", in "Representation Theory of Reductive Groups", Birkhauser, 1983, pp. 1–19.

18. "On some problems suggested by the trace formula", in "Lie Group Representations II", Springer Lecture Notes, Vol. 1041, 1984, pp. 1–49.

19. "The trace formula for noncompact quotient", Proceedings of International Congress of Mathematicians, Warsaw, 1983, pp. 849–859.

20. "A measure on the unipotent variety", *Canad. J. Math.* **37** (1985) 1237–1274.

21. "On a family of distributions obtained from orbits", *Canad. J. Math.* **38** (1986) 179–214.

22. "The Fourier transform of weighted orbital integrals on $SL(2,R)$", (with R. Herb and P. Sally), *Contemporary Math.* **53** (1986) 17–37.

23. "The characters of supercuspidal representations as weighted orbital integrals", *Proc. Indian Acad. Sci.* **97** (1987) 3–19.

24. "The local behaviour of weighted orbital integrals", *Duke Math. J.* **56** (1988) 223–293.

25. "Characters, harmonic analysis, and an L-Lefschetz formula", *Proc. Sympos. Pure Math.* **48** (1988) 167–179.

26. "The invariant trace formula. I. Local theory", *J. Amer. Math. Soc.* **1** (1988) 323–383.

27. "The invariant trace formula. II. Global theory", *J. Amer. Math. Soc.* **1** (1988) 501–554.

28. "Intertwining operators and residues I. Weighted characters", *J. Funct. Anal.* **84** (1989) 19–84.

29. "Intertwining operators and residues II. Invariant distributions", *Compositio Math.* **70** (1989) 51–99.

30. "Simple Algebras, Base Change and the Advanced Theory of the Trace Formula", (with L. Clozel), Annals of Math. Studies, Vol. 120, 1989, Princeton University Press.

31. "The trace formula and Hecke operators", in "Number Theory, Trace Formulas and Discrete Groups", Academic Press, 1989, pp. 11–27.

32. "The L-Lefschetz numbers of Hecke operators", *Invent. Math.* **97** (1989) 257–290.

33. "Harmonic analysis of tempered distributions on semisimple Lie groups of real rank one", "Representation Theory and Harmonic Analysis on Semisimple Lie Groups", ed. P. Sally and D. Vogan, Amer. Math. Soc., 1989, pp. 13–100.

34. "Unipotent automorphic representations: Conjectures", *Asterisque* **171–172** (1989) 13–71.

35. "Unipotent automorphic representations: Global Motivation" in "Automorphic Forms, Shimura Varieties and L-functions", Vol. I, Academic Press, 1989, 1–75.

36. "Towards a local trace formula", in Proceedings of First JAMI Conference, Johns Hopkins University Press (1990), 1–23.

37. "Lectures on automorphic L-functions (with S. Gelbart), in "L-functions and Arithmetic", Cambridge University Press, 1991, 1–59.

38. "Some problems in local harmonic analysis", in "Harmonic Analysis on Reductive Groups", Birkhauser, 1991, 57–78.

39. "A local trace formula", *Pub. Math. I.H.E.S.* **73** (1991) 5–96.

40. "On elliptic tempered characters", *Acta Math.* **171** (1993), 73–138.

41. "On the Fourier transforms of weighted orbital integrals", *J. reine angew. Math.* **452** (1994), 163-217.

42. "The trace Paley-Wiener theorem for Schwartz functions", *Contemp. Math.* **177** (1994), 171-180.

43. "L^2 -cohomology and automorphic representations", *Canadian Mathematical Society 1945-1995*, Vol. **3** (1996), 1-17.

44. "On local character relations", *Selecta Math.* **2**, No. 4 (1996), 501-579.

45. "The problem of classifying automorphic representations of classical groups", *CRM Proceedings and Lecture Notes*, Vol. 11 (1997), 1-12.

46. "Stability and endoscopy: informal motivation", *Proc. Sympos. Pure Math.* **61** (1997), 433-442.

47. "Canonical normalization of weighted characters and a transfer conjecture", *C.R. Math. Rep. Acad. Sci., Canada,* **20** (2), (1998), 35-52.

48. "Towards a stable trace formula", Proceedings of the International Congress of Mathematicians", Berlin, 1998, Vol. II, pp. 507-517.

49. "On the transfer of distributions: weighted orbital integrals", *Duke Math. J.* **99** (1999), 209-283.

50. "Endoscopic L-functions and a combinatorial identity", *Canad. J. Math.* **51**, (1999), 1135-1148 (Coxeter memorial volume).

51. "Stabilization of a family of differential equations", *Proc. Sympos. Pure Math.* **68** (2000), 77-95.

52. "Harmonic analysis and group representations", *Notices of AMS* **47** (2000), 26-34.

53. "A stable trace formula II. Global descent", *Invent. Math.* **143** (2001), 157–220.

54. "A stable trace formula I. General expansions", *Journal of the Inst. of Math Jussieu* **1** (2002), 175-277.

55. "A stable trace formula III. Proof of the main theorems", *Annals of Math*, **158** (2003), 769–873.

56. "A note on the automorphic Langlands group", *Canad. Math. Bull.* **45** (2002), 466-482.

57. "The principle of functoriality", *Bull. Amer. Math. Soc.* **40** (2002), 39-53.

58. "Automorphic representations of $GSp(4)$", in "Contributions to Automorphic Forms, Geometry, and Number Theory", The Johns Hopkins University Press, 2004, 65-81.

59. "Germ expansions for real groups", preprint.

60. "Armand Borel (1923-2003)", with E. Bombieri, K. Chandraskharan, F. Hirzebruch, G. Prasad, J.-P. Serre, T. Springer and J. Tits, *Notices of AMS*, **51** (2004), 498-524.

61. "Harmonic Analysis in Mathematics", in *Idea&s*, volume 2: number 1, 2005, Faculty of Arts and Science, University of Toronto, p. 64.

62. "AMS President's Address at Abel Celebration", *Notices of AMS*, **52** (2005), 745-746.

63. "An Introduction to the Trace Formula", in "Harmonic Analysis , the Trace Formula and Shimura Varieties", *Clay Mathematics Proceedings*, vol. 4, 2005, 1–263.

64. "A note on L-packets", *Pure and Applied Math. Quarterly*, vol. 2, No. 1 (2006), 199–207.

65. "An asymptotic formula for real groups", *J. reine angew. Math*, **601** (2006), 163–230.

66. "Parabolic transfer for real groups", *J. Amer. Math. Soc.*, **21** (2008), 171–234.

67. "A (very brief) History of the Trace Formula ", *Newsletter*, Pacific Institute for the Mathematical Sciences, vol. 10, Issue 2, 2007, 8–11.

68. "Problems for real groups", *Contemporary Math.*, **472** (2008), 39–62.

69. "Report on the trace formula", *Contemporary Math.*, **488**, (2009), 1–12.

70. "Induced representations, intertwining operators and transfer", in "Group Representations, Ergodic Theory, and Mathematics Physics: A tribute to George W. Mackey", *Contemporary Mathematics*, **449**, 2008, p. 51-67.

71. "The embedded eigenvalue problem for classical groups", submitted proceedings of conference "On Certain L-functions", Clay Mathematics Institute.

72. "Transfer, the fundamental lemma, and the work of Waldspurger", *Clay Mathematics Institute annual report*, 2009, p. 7-9.

73. The work of Ngo Bau Chau, to appear in *Proceedings of ICM*, 2010.

10. Invited Lectures (2005-2010)

1. "Harmonic Analysis in mathematics", October 27, 2005, Plenary Lecture, Mexico City, National Congress of Mexican Mathematical Society.
2. "An introduction to the Langlands program", April 25, 2006, Howard University, Washington, Colloquim.

3. "Harmonic analysis in mathematics", May 1, 2006, University of California at Berkeley, MSRI-Evans talk.
4. "Weighted orbital integrals and the Langlands program", May 2, 2006, California Institute of Technology, Leonidas Alaoglu Memorial Lecture in Mathematics.
5. "Weighted orbital integrals and the Langlands program II", May 3, 2006, California Insitute of Technology, number theory seminar.
6. "Report on the trace formula", May 15, 2006, Weizmann Insitute of Science, Israel, conference Automorphic Forms and L-functions, in honour of 60th birthday of Steve Gelbart.
7. "The trace formula and weighted orbital integrals", October 9, 2006, Institute for Advanced Study, Princeton, conference The L-group at 40, in honour of 70th birthday of Robert Langlands.
8. "A history of the trace formula", November 6, 2006, University of British Columbia, lecture in series celebrating the tenth anniversary of PIMS.
9. "Induced representations, intertwining operators and transfer", January 7, 2007, New Orleans, conference Group Representations, Ergodic Theory and Mathematical Physics, in memory of George W. Mackey.
10. "The embedded eigenvalue problem for classical groups, August 3, 2007, Purdue University, conference "On Certain L-functions", in honour of the 60th birthday of Freydoon Shahidi, 60 minutes.
11. "On the trace formula and the classification of representations", September 29, 2007, University of Maine, "Maine/Quebec Conference on Number Theory and Related Topics", 60 minutes (keynote speaker).
12. "Semisimple groups as universal examples", January 7, 2008, American Mathematical Society, San Diego, 50 minutes (Retiring Presidential Address).
13. "Recent history of the trace formula", January 12, 2008, Institute for Advanced Study, Princeton, at meeting Atle Selberg Memorial Program in honor of his life and work, 40 minutes.
14. "On the endoscopic classification of representations", May 11, 2008, Northwestern University, 60 minutes, conference "Recent Developments and Directions in the Langlands Program", in celebration of Langlands' Nemers Prize.
15. "Introduction to harmonic on p-adic groups", August 12, 2008, BIRS, Banff.
16. "Functorial transfer for classical groups, statements", August 14, 2008, BIRS, Banff.
17. "Functorial transfer for classical groups, sketch of proofs", August 14, 2008, BIRS, Banff.
18. "What the proof of the fundamental lemma gives us", August 15, 2009, Canadian Mathematical Society, Vancouver, Plenary Lecture, CMS-SMM-2009.
19. "The work of Ngo Bao Chau", August 19, 2011, International Congress of Mathematicians, Hyderabad, India.

D. LIST OF COURSES

12a. Undergraduate

2010-2011	MAT 135Y	Calculus for Life Sciences
2007-2008	MAT 135Y	Calculus for Life Sciences
2004-2005	MAT 257Y	Calculus on Manifolds
2003-2004	MAT 257Y	Calculus on Manifolds
1993-1994	MAT 467H	Seminar in Mathematics
1988-1989	MAT 334F	Complex Variables
1987-1988	MAT 334F	Complex Variables
1986-1987	On sabbatical	
1984-1985	MAT 239Y	Advanced Calculus, University of Toronto.
1981-1982	MAT 139Y	Calculus and Linear Algebra, University of Toronto, Day and Night Sections.
1980-1981	MAT 139Y	Calculus and Linear Algebra, University of Toronto.
	MAT 225Y	Linear Algebra, University of Toronto, Day and Night Sections
1979-1980	MAT 295F	Calculus III, University of Toronto
	APM 346S	Differential Equations, University of Toronto

12b. Graduate

2011	MAT 1197S	Automorphic Representations of Classical Groups
2010	MAT 1198S	Automorphic Forms and the Trace Formula
2009	MAT 1197F	Introduction to Automorphic Forms
2003	MAT 1197S	Introduction to Trace Formula
1999-2000	MAT 1198S	Representations of Classical Groups
1998-1999	MAT 1100Y	Algebra (core course)
1998-1999	MAT 1197S	Introduction to Trace Formula
1997-1998	MAT 1100Y	Algebra (core course)
1996-1997	MAT 1100Y	Algebra (core course)
1995-1996	MAT 1100Y	Algebra (core course)
1993-1994	MAT 1110F	Algebraic Groups
1992-1993	MAT 1121F	Topics in Lie Algebras and Lie Groups
1992-1993	MAT 1120F	Introduction to Lie Algebras and Lie Groups
1991-1992	MAT 1000Y	Real Analysis (core course)
1990-1991	MAT 1000Y	Real Analysis (core course)
1989-1990	MAT 1000Y	Real Analysis (core course)
1988-1989	MAT 1197F	Automorphic Forms and Representation Theory
1987-1988	MAT 1197F	Automorphic Forms and Representation Theory
1979-1980	MAT 1124Y	Representations of $GL(n, R)$, University of Toronto

Theses Supervised

Chao Li	"A Local Twisted Trace Formula and Twisted Orthogonality Relations", 2009
Cristina-Maria Ballantine	"Hypergraphs and automorphic forms", 1998

Paul Mezo	"A global comparison for general linear groups and their metaplectic coverings", 1998
Heng Sun	"The residual spectrum of $\overline{GL(N)}$: The Borel Case", 1997
Clifton Cunningham	"Characters of depth-zero supercuspidal representations of $Sp(4, F)$: from perverse sheaves to Shalika germs", 1997.
Jason Levy	"A modified trace formula", 1992
Peter Mischenko	"Invariant Tempered Distributions on the Reductive p-adic Group $GL(n, F)$", 1982.

E. ADMINISTRATIVE POSITIONS

1985-1986	Graduate Coordinator
1981-1982	Associate Chairman

Professional Activities

Outside the University

- Editorial Advisory Board, Journal fur die reine und angewandte Mathematik, Gottingen, (1985-).
- Editorial Advisory Board, Journal of the American Mathematical Society, (1988-2002)
- Associate Editor for the Canadian Journal of Mathematics and the Canadian Mathematical Bulletin, (1986-1991).
- Editorial Board of International Mathematics Research Notices, Duke University, (1991-2000).
- Chairman of Panel to select speakers in Section 7 (Lie Groups and Representations) for International Congress of Mathematicians in Tokyo, 1990.
- Executive Committee of International Mathematics Union (1991-1998).
- NSERC Grant Selection Committee in mathematics, (1988-1991).
- Convenor for Mathematics Division, Royal Society of Canada (1988-1990).
- Academy Fellowship Review Committee, Royal Society of Canada (1991-1993).
- Council of American Mathematical Society (1986-1988).
- National Program Committee, American Mathematical Society (1989-1991).
- Committee on Committees, American Mathematical Society (1991-1992).
- Steering Committee for Centre de Recherches Mathematiques, University of Montreal (1989-1992).
- Scientific Advisory Panel, Fields Institute (1992-1995).
- Nominating Committee, Fields Institute (1992-1996).
- Organizing Committee for the conference in honour of Robert Langlands, Institute for Advanced Study (1996).
- Editor, World Directory of Mathematics (1997-98).

- Board of Trustees of the Institute for Advanced Study, Princeton (1997-2007) (Academic Trustee for mathematics).
- Vice-President, American Mathematical Society (1999-2002).
- Search Committee for Director, Fields Institute (2000-2001).
- Editor, World Directory of Mathematicians (2001-2002).
- Selection Committee for 2002 Fields Medals, International Mathematical Union.
- Search Committee for President of Clay Mathematics Institute (2003).
- Organizing Committee for Clay Mathematics Institute Summer School on Harmonic Analysis, The Trace Formula and Shimura Varieties (2002-2003).
- Scientific Committee of the Institute of Mathematical Sciences at Zheijang University, Hangzhou, China.
- President Elect, American Mathematical Society (2004-2005).
- Ad Hoc Committee, Faculty of Arts and Sciences, Harvard University.
- President, American Mathematical Society (2005-2007).

Within the University

- Council of School of Graduate Studies, and Division III Executive Committee (1985-86)
- Committee for Honorary Degrees (1988-90).
- Presidential Search Committee (1989).
- University Professors Selection Committee (1990-92, 1996-1997).
- Presidential Advisory Committee, Vice-President and Provost (1992).
- Presidential Advisory Committee, Vice-President, Research and International Relations (1993).
- Connaught Committee (1993–1997).
- Fellow, Trinity College (1990-).
- Fellow, Massey College (1993-).
- Committee to Review the Final Oral Examination, School of Graduate Studies (1996).
- Jackman Distinguished Chairs in the Humanities Selection Committee (1999-2000).