

VITA

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1.1. History of Assignments.

50% teaching and 50% research

1.2. Teaching.

1.2.1. Documentation of teaching activities.

1.2.1.1. Teaching Evaluations

The evaluations below come from standard questions used by all faculty in the Department of Mathematics as well as the College of Arts and Sciences. In fall 2002 a new teacher evaluation took place. The questions were different, and the scale is different, i.e. 1-5 instead of 1-4. Both evaluations were used in fall 2002. The following table uses the old evaluation forms for the year 2002. Here F stands for fall and S for the spring. Evaluations for the fall 2005 are still not available.

Evaluations

Semester	Course Section	Technical Quotient	Technical Quotient all sections	Attitude Quotient	Attitude Quotient all sections	Overall Rating	Overall Rating all sections
F 2005	2057-5						
S 2005	No teaching duties because of grant relive and previous overload						
F 2004	1552-9	4.1		3.9		4.2	4.3
	1552-12	4.2		4.2		4.3	4.3
	2025-1	4.3		4.4		4.4	4.3
S 2004	No teaching, President of the A&S Senate						
F 2003							
S 2003	7390	4.8	4.6	4.7	4.6	4.8	4.6
F 2002	2090-6	3.40	3.65	3.10	3.51	3.36	3.71
	2025-1	3.48	3.48	2.83	2.83	2.89	2.89
S 2002	4325-1	3.67	3.67	3.58	3.58	3.73	3.73
	7370-1	3.83	3.83	3.70	3.17	3.80	3.80
F 2001	2025-1	3.63	3.63	3.25	3.25	3.44	3.44
S 2001	2025-1	3.41	3.41	3.05	3.05	3.13	3.13
	7390-1	New teacher evaluation for graduate courses					
F 2000	1550-25	Lost, only the comments from the students could be found					
	1550-30	3.45	3.33	3.11	2.85	3.21	2.96
S 2000	7312-1	3.77	3.77	3.59	3.59	3.86	3.86
	7390-1	3.79	3.79	3.79	3.79	3.71	3.71
F 1999		On sabbatical leave					
S 1999	2065-2	3.68	3.46	3.42	3.16	3.63	3.27
	7390-1	New teacher evaluation for graduate courses					
F 1998	7390-1	New teacher evaluation for graduate courses					
	1552-9	3.50	3.41	3.09	3.08	3.35	3.24
S 1998	7312-1	New teacher evaluation for graduate courses					
F 1997	2070-1	3.71	3.67	3.60	3.50	3.80	3.75

	2070-2	3.64	3.67	3.40	3.50	3.69	3.75
S 1997	2057-4	3.45	3.44	3.25	3.17	3.43	3.29
	7390-2	3.60	3.80	3.75	3.88	3.60	3.80
F 1996	1552-8	3.53	3.21	3.00	2.89	3.44	3.03
	2065-5	3.69	3.31	3.27	2.94	3.50	3.03
S 1996		On leave in Sweden					
Semester	Course Section	Technical Quotient	Technical Quotient all sections	Attitude Quotient	Attitude Quotient all sections	Overall Rating	Overall Rating all sections
F 1995	1550-15	3.61	3.27	3.06	2.79	3.29	2.79
	7370-1	3.84	3.84	3.75	3.75	3.50	3.50
S 1995	1550-10	3.12	3.34	2.66	3.17	2.88	3.29

1.2.1.2. Teaching History

The table below lists the courses I have taught at LSU, in most cases together with the number of students enrolled in each section. Usually I conduct around 2 or 3 reading classes with graduate students per semester. Those, and work with PhD students, are not contained in the following list. The reading classes have been on material like *complex analysis*, *distribution theory*, and *wavelets and applied harmonic analysis*. All classes are in mathematics. I usually have NSF summer support and have therefore never taught classes during the summer except a reading class during the summer 2006 to prepare two students for their graduate study.

Courses taught

Semester	Number	Name	Enrollments
S 2006	4032-1	Advanced Calculus II	27
S 2006	7390-1	Abstract harmonic analysis II	7
S 2006	7390-2	Deep reading seminar	6
F 2005	2057-5	Calculus III	35
S 2005		No classes. Overload and grant relive	
		Two PhD students finish in August	
F 2004	1552	Calculus II	
F 2004	1552	Calculus II	
	2025-1	Wavelets made easy	
S 2004		No teaching, A&S senate President	
		One MS student and one PhD student finish in August	

Semester	Number	Name	Enrollments
F 2003	2025-1	Wavelet made easy	25
	7390	Harmonic Analysis I	5
S 2003	7390	Applied Harmonic Analysis and Wavelets	7
F 2002	2025-1	Integral transform and their applications	17
	2090-6	Elementary Differential Equations	36
S 2002	4325-1	Fourier Analysis	16
	7370-1	Lie groups and their Representations	8
F 2001	2025-1	Integral transform and their applications	15
	First 1/3 of 4038-1	Mathematical Methods in Engineering	
S 2001	2025-1	Integral transforms and their applications	25
	7390-1	Harmonic Analysis	5
F 2000	1550-25	Calculus	
	1550-30	Calculus	
S 2000	7312-1	Measure Theory	13
	7390-1	Applied Harmonic Analysis and Wavelets	9
F 1999	Sabbatical leave		
S 1999	2065-2	Elementary Differential Equations	31
	7390-1	Applied Harmonic Analysis and Wavelets	6
F 1998	7390-2	Harmonic Analysis	7
	1552-9	Calculus	30
S 1998	7312-1	Real Analysis	14
F 1997	2070-1	Mathematical Methods in Engineering	29
	2070-2	Mathematical Methods in Engineering	20
S 1997	2057-4	Multidimensional Calculus	33
	7390-4	Harmonic Analysis	5
F 1996	1552-8	Calculus II	37
	2065-5	Elementary Differential Equations	29
S 1996	Scientific Organizer at the Mittag-Leffler Institute in Sweden		
F 1995	1550-15	Calculus I	30
	7370-1	Lie Groups	7
S 1995	1550-10	Calculus	39
F 1994	2090-4	Elementary Differential Equations	38
	7550-1	Remanning Geometry	7
S 1994	Leave at the University of Roskilde, Denmark		
F 1993	2070-1	Mathematical Methods in Engineering	
	4031-2	Advanced Calculus	
S 1993	2057-7	Multidimensional Calculus	
	2065-4	Elementary Differential Equations	

1.2.2. *Listing of publications concerning instruction.*

1.2.2.1. Textbooks	None
1.2.2.2. Shorter Works	None
1.2.2.3. Edited books with scholarly introductions or notes by the editor	None
1.2.2.4. Recordings	None

1.2.2.5. Instructional material

I have posted several lecture notes and instructional material on my webpage

<http://www.math.lsu.edu/~olafsson/teaching>

and on the harmonic analysis webpage

<http://www.math.lsu.edu/harmonic>

which we organize together with Prof. R. Fabec. This page is only available for students and faculty member at LSU.

In particular the following notes are available:

- Lecture notes for Math 2025, Wavelet made easy. This includes the complete course as a pdf-file.
- (With R. Fabec), lecture notes for Math 7390, Abstract harmonic analysis.
- Lecture notes on Lie groups.

1.2.2.6. Miscellaneous

None

1.2.3. *Instructional publications accepted but not yet published.*

1.2.4. *Participation.*

1.2.4.1. Professional Meetings, etc., on teaching

1. 11/7/2002: Gateway to the Major: Math 2025, Introduction to wavelets and applications. AMSmer-Workshop on 'Excellence in Undergraduate Mathematics: Diversification of Upper-Level Mathematics Programs' November 7-10, Baton Rouge.

1.2.4.2. Local instructional activities

1. We are advising 3 PhD students now.
2. Previously, chair of 3 Doctoral committees at LSU.
3. Deans representative on 2 Doctoral committees at LSU.
4. Member of several Doctoral committees at Department of Mathematics at LSU.
5. Mentoring one undergraduate student in the program *Chancellor's Future Leaders in Research*.
6. Advised 3 students in *Communicating Math..*
7. Have actively participated in setting up the mentoring system for graduate students to prepare them for job applications and write a CV.
8. Actively participated in curriculum discussion and development during my tenure at LSU, in particular as a member, and since 2002 chair, of the Departmental VIGRE committee which has been driving force in the curriculum discussion and has proposed several new initiatives at the Department, both on the graduate and undergraduate level.
9. The PI of 3 VIGRE proposals. The proposal submitted in fall 2004 was ranked number 4 and the Department got a site visit of the NSF VIGRE Site Visit Team in spring 2005. In the end, only 3 VIGRE grant were awarded.
10. Chaired the *Applied Mathematics Committee* 1999-2000 as the program *Master with Concentration in in Application* was designed.
11. Designed the gateway class **Math 2025, Wavelet Made easy** and taught it the first 3 years. Wrote the lecture notes that are still used and posted them on my webpage.
12. Designed the graduate class **Applied Harmonic Analysis and Wavelets** and taught the class several times.
13. Together with R. Fabec, I designed a one year graduate class on **Abstract Harmonic Analysis and Representation Theory**. We wrote lecture notes for the class. Those notes are available on the internet. We have contact the AMS for publication of the notes as a text book.

14. Student advisor in Göttingen from 1989-1991.
 15. Evaluation of the course in elementary calculus at the University at Roskilde, 1992.
- 1.2.5. *Other instructional activities or contributions to the profession.*
1. 2001: Member of the *Habilitation Committee* for A. Pasquale, Clausthal Zellerfeld, Germany. The title of her Thesis is *A theory of Θ -spherical functions*
 2. 2001: Member of the Ph.D. committee for M. Y. Angeli, Nancy. The title of his thesis is *Analyse harmonique sur les cones stélites*
 3. Referee for the PhD Thesis of J.Kockmann, Göttingen, and F. Betten. Göttingen. Referee for the Habilitation Thesis of H. Thorleifsson, Göttingen, 1994. 1.2.5.1. Membership in professional organizations
- 1.2.5.2. Administrative duties related to instruction
1. Chair of the VIGRE committee, 2002–.
 2. Chair of the Applied Mathematics Committee, 1999-2000. The main work was to design and start the program *Master with Concentration in Applications*.
- 1.2.5.3. New teaching methods/material developed, etc.
- I have developed several courses during my tenure at LSU.
1. Math 2025, Wavelet made easy. This is one of the capstone courses at the Department of Mathematics. I developed this course and taught it the first few year. I developed lecture notes that are now posted on the internet. In the classroom I use the internet to present the lecture notes directly from my webpage. I also had several students develop material for the class and present it during the semester. J. Cygan has also taught the course. Two publishers have shown interest in publishing the lecture notes and J. Cygan and I are working on turning them into a text book.
 2. I developed, together with R. Fabec, a one year course on *Harmonic Analysis*. This course runs every second or third year. We wrote lecture notes for the course that are posted on the *Harmonic Analysis Webside*. We are now rewriting them as a textbook.
 3. I have actively participated in the VIGRE committee since the Department started to work on a VIGRE proposal. I have been the chair of the VIGRE committee since 2002. The committee has developed and proposed several changes in instruction and curriculum that have later been adopted.
 4. I have actively participated in the discussion on *how to mentor graduate students* and prepare them for job applications.
- 1.2.6. *Awards, etc., that show recognition of teaching achievement.*
- 2000 Alpha Lambda Delta Freshman Honor Society, for Superior Instruction of Freshman Students in the Fall of 2000
- 1998: Alpha Lambda Delta Freshman Honor Society, for Superior Instruction of Freshman Students in the Fall of 1998
- 1993: Award from the University of Roskilde for special efforts during the year 1992.
- 1.2.7. *Research Support/Grant Activities pertaining to teaching.*
1. 2006, PI of the *Board of Regents, EPSCoR* grant *Enhancing the LSU VIGRE proposal*, \$9,996.- .
 2. 2005, PI of the VIGRE application, DMS-0602182, \$3381656. Submitted Oct. 2005. Declined.
 3. 2004, PI of the NSF grant application DMS-0502220 Louisiana State University VIGRE Proposal EMSW21-VIGRE, \$3,141,921.- Recommended for a site visit, Feb. 18, 2005. Declined, August 2005.

4. PI of the VIGRE proposal, DMS-0354307, \$ 3311349. Declined
5. 2001, Co-Pi on NSF grant, DMS-0135265, PI, J. Lawson: Vertical Integration of Research and Education in the Mathematical Sciences - VIGRE: Vertical Integration Through Research and Education Modules. §2,531,934. Declined
6. 1999, Co-PI on NSF grant 9983667. PI, J. Lawson: Vertical Integration through Research and Education Modules. \$ 2,357,292. Declined

1.3. Research and Creative Activity.

1.3.1. Listing of research publications.

1.3.1.1. Books and Monographs

1. (With J. Hilgert) Causal Symmetric Spaces, Geometry and Harmonic Analysis. Perspectives in Mathematics **18**, Academic Press, 1996

1.3.1.2. Shorter Works

Refereed Articles and refereed Chapters in Books:

1. (with A. Pasquale) Support properties and Holmgren's uniqueness theorem for differential operators with hyperplane singularities. *J. Funct. Anal.* **239** (2006), 21–43.
2. (with M. Dobrescu) Wavelets without groups. *Contemp. Math.* **405** (2006), 27–40.
3. (with T. Branson and A. Pasquale) The Paley-Wiener Theorem and the local Huygens' principle for compact symmetric spaces. *Indagationes* **16** (2005), 393–428. Special volume of *Indagationes* in honor of G. van Dijk.
4. (with T. Branson and A. Pasquale) The Paley-Wiener Theorem for the Jacobi Transform and the Local Huygens' Principle for Root Systems with Even Multiplicities. *Indagationes* **16** (2005), 429–442. Special volume of *Indagationes* in honor of G. van Dijk.
5. Continuous action of Lie groups on \mathbb{R}^n and frames. *International Journal of Wavelets, Multiresolution and Information Processing* **3** No. 2 (2005), 211–235
6. (with B. Krötz and R. Stanton) The image of the heat kernel transform on Riemannian symmetric spaces of the noncompact type. *International Mathematics Research Notices* **22** (2005), 1307–1329
7. (with S. Gindikin and B. Krötz) Holomorphic H -spherical distribution vectors in principal series representations. *Inventiones Mathematicae* **158** (2004), 643–682
8. (with S. Gindikin and B. Krötz) Erratum: Holomorphic H -spherical distribution vectors in principal series representations. *Inventiones Mathematicae* **158** (2004), 683–684
9. (with A. Pasquale) A Paley-Wiener Theorem for the Θ -spherical Transform: The Even Multiplicity case. *Journal de mathématiques pures et appliquées* **83** (2004), 811–954
10. (with D. Speegle) Wavelets, wavelet sets, and linear actions on \mathbb{R}^n , *Contemporary Mathematics (AMS)* **345**, *Wavelets, Frames and Operator Theory*, Eds: C. Heil, P. Jorgensen, D. Larson, 2004, 253–281
11. (with A. Pasquale) Paley-Wiener theorems for the Θ -spherical transform: An overview. *Acta Applicandae Mathematicae* **81** (2004), 275–309
12. (with M. Davidson) The Generalized Segal-Bargmann transform and Special Functions *Acta Applicandae Mathematicae*, **81** (2004), 29–50
13. (with B. Krötz) The c -function for non-compactly causal symmetric spaces and its relations to harmonic analysis and representation theory Ed. S.G. Gindikin, Lie groups and symmetric spaces, In memory of F.I. Karpelevich. *AMS Translations* **210**, 171–194 (2003)
14. (with Mark Davidson) Differential recursion relations for Laguerre functions on Hermitian matrices. *Integral Transforms and Special Functions* **14**, 469–484 (2003)

15. (with M. Davidson and G. Zhang) Laplace and Segal-Bargmann transforms on Hermitian symmetric spaces and orthogonal polynomials. *J. Funct. Anal.* **204** (2003), 157–195
16. (with N. B. Andersen and H. Schlichtkrull) On the inversion of the Laplace and Abel Transforms for causal symmetric spaces. *Forum Math.* **15** (2003), 679–699
17. (with S. Gindikin and B. Krötz) Hardy spaces for non-compactly causal symmetric spaces and the most continuous spectrum. *Math. Ann.* **327** (2003), 25–66
18. (with R. Fabec) The continuous Wavelet transform and symmetric spaces. *Acta Applicandae Mathematicae* **77**(1) (2003), 41–69
19. (with B. Krötz) The c -function for non-compactly causal symmetric spaces. *Invent. Math.* **149** (2002) 3, 647–659
20. (with M. Davidson and G. Zhang) Laguerre polynomials, restriction principle, and holomorphic representations of $SL(2, \mathbb{R})$. *Acta Applicandae Mathematicae* **71** (3), 261–277 (2002)
21. (with A. Pasquale) Regularity properties of generalized Harish-Chandra expansions. In: A. Strasburger et al. (eds.), *Geometry and analysis on finite- and infinite-dimensional Lie groups*, Banach Center Publications 55 (2002), 335–348. Banach Center Publications, 2002
22. (with F. Betten) Causal Compactification and Hardy Spaces for Spaces of Hermitian Type. *Pacific J. Math.* **200** (2001), 273–312
23. (with B. Krötz and K-H. Neeb) Spherical Functions on Mixed Symmetric Spaces. *Representation Theory*, **5** (2001), 43–92.
24. (with A. Pasquale) On the meromorphic extension of the spherical functions on noncompactly causal symmetric spaces. *J. Funct. Analysis* **181** (2001), 346–401
25. (with N. Andersen) A Paley-Wiener Theorem for the Spherical Laplace Transform on Causal Symmetric Spaces of Rank One. *Proceedings of the AMS.* **129** (2001), 173–179
26. Analytic Continuation in Representation Theory and Harmonic Analysis. In: *Global Analysis and Harmonic Analysis*, ed. J. P. Bourguignon, T. Branson, and O. Hijazi. *Seminars et Congr*, vol 4, (2000), 201–233. Pub.: The French Math. Soc.
27. (with A. Neumann) Minimal and Maximal Semigroups Related to Causal Symmetric Spaces. *Semigroup Forum* **61** (2000) 57–85
28. (with P. Jorgensen) Unitary representations and Osterwalder-Schrader Duality. Ed. R. S. Doran, V. S. Varadarajan: *The Mathematical Legacy of Harish-Chandra: A Celebration of Representation Theory and Harmonic Analysis*, PSPM, AM, 2000
29. (with P. Jorgensen) Osterwalder-Schrader Axioms - Wightman Axioms. *Encyclopaedia of Mathematics, Supplement II* Kluwer, Jan. 2000.
30. (With B. Ørsted Causal Compactification and Hardy Spaces. *Trans. AMS* **351** (1999), 3771–3792
31. (with T. Branson) Asymptotics of the D’Alembertian with Potential on a Pseudo-Riemannian Manifold. *Proceedings of the AMS* **127** (1999), 1339–1345
32. (With A. G. Helminck, J. Hilgert, A. Neumann) A Conjugacy Theorem for Symmetric Spaces. *Mathematische Annalen* **313** (1999), 785–791
33. (with P. Jorgensen) Unitary Representations of Lie Groups with Reflection Symmetry. *J. Funct. Anal.* **158** 26–88 (1998)
34. Open Problems in Harmonic Analysis on Causal Symmetric Spaces. p. 249–270. In: *Positivity in Lie Theory; Open Problems*. Ed. J. Hilgert, J. D. Lawson, K-H. Neeb, E. B. Vinberg, De Gruyter 1998
35. (with B. Krötz and K-H. Neeb) Spherical Representations and Mixed Symmetric Spaces. *Representation Theory* **1**, 424–461 (1997)
36. (with T. Branson) Helmholtz Operators and Symmetric Space Duality. *Invent. Math.* **129**, 63–74 (1997)

37. (with T. Branson and B. Ørsted) Spectrum Generating Operators, and Intertwining Operators for Representations Induced from a maximal Parabolic Subgroup. *J. Funct. Anal.* **135** (1996) 163-205
38. (with T. Branson and H. Schlichtkrull) Huyghens' Principle in Riemannian Symmetric Spaces. *Math. Ann.* **301**, 445-462 (1995)
39. (with J. Faraut) Causal Semisimple Symmetric Spaces: The Geometry and Harmonic Analysis. In: Ed. Hofmann, Lawson, Vinberg: "Semigroups in Algebra, Geometry and Analysis", 3-32, 1995
40. (with J. Faraut and J. Hilgert) Spherical functions on ordered symmetric spaces. *Ann. Inst. Fourier* **44** (1994), 927-966
41. (with T. Branson and H. Schlichtkrull) A bundle valued Radon transform, with applications to invariant wave equations. *Quart. J. Math. Oxford* **45** (1994) 429-461.
42. (with J. Hilgert) Analytic extensions of representations, the solvable case. *Jap. Journ. Math.* **18** (1993) 213-290
43. (with B. Ørsted) Analytic continuation of Flensted-Jensen Representation. *Manuscripta Math.* **74** (1992), 5-23
44. (with H. Schlichtkrull) Wave propagation on Riemannian symmetric space. *J. Funct. Anal.* **107** (1992) 270-278
45. (with T. P. Branson) Equipartition of Energy for Waves in Symmetric Spaces. *J. Funct. Anal.* **97** (1991), 403-416
46. (with J. Hilgert and B. Ørsted) Hardy Spaces on Affine Symmetric Spaces. *J. reine und angew. Math.* **415** (1991), 189-218
47. (with B. Ørsted) The holomorphic discrete series of an affine symmetric space and representations with reproducing kernels, *Trans. Amer. Math. Soc.* **326** (1991), 385-405
48. Symmetric Spaces of Hermitian Type. *Differential Geometry and Applications* **1** (1991), 195-233
49. (Habilitation) Causal symmetric spaces. *Mathematica Gottingensis* **15** (1990)
50. (with B. Ørsted) The holomorphic discrete series for affine symmetric spaces I. *Journal of Funct. Anal.* **81** (1988), 126-159.
51. Fourier and Poisson transformation associated to a semisimple symmetric space. *Invent. Math.* **90** (1987) 605-629.
52. Die Langlands-Parameter für die Flensted-Jensensche fundamentale Reihe. *Math. Scand.* **55** (1984) 229-244

Book reviews.

1. Book review: *Holomorphy and Convexity in Lie Theory* by K.-H. Neeb, De Gruyter Expositions in Mathematics, 8, Berlin, New York, 2000 Jahresbericht der DMV **104** (2002)
2. Book review: 'Lie Groups, Convex Cones and Semigroups', by J. Hilgert, K.H. Hofmann and J.D.Lawson. Oxford Univ. Press. 1989. *Jahresbericht der DMV* **95**, (1992), 5-8

Non refereed articles and chapters in books:

1. (with T. Quinto) Introduction. In: Ed. G. Olafsson and T. Quinto: The Radon Transform, Inverse Problems, and Tomography. Proceedings of Symposia in Applied Mathematics. AMS.
2. (with H. Feichtinger, P. Jorgensen and D. Larson) Introduction to *Mathematisches Forschungsinstitut Oberwolfach Report No. 10/2004, Mini-Workshop: Wavelets and Frames, February 15th-February 21st, 2004*, Oberwolfach, 2004, 3-5
3. Groups, Wavelets, and Function Spaces. In: *Mathematisches Forschungsinstitut Oberwolfach Report No. 10/2004, Mini-Workshop: Wavelets and Frames, February 15th-February 21st, 2004*, Oberwolfach, 2004, 33-36

4. The c -function for symmetric spaces. A Contribution in *Proceedings of an International Workshop on Lie Theory and its applications in physics*. Ed. H-D. Dobner, V. K. Dobrev, J. Hilgert. World Scientific, 2001
5. Unitary Representations with Reflection Symmetry. In: *Proceedings of an International Workshop on Lie Theory and its applications in physics*. Ed. H-D. Dobner, V. K. Dobrev, J. Hilgert. World Scientific, 1999
6. (with B. Ørsted) Generalization of the Bargmann Transform. *Proceedings of a "Workshop on Lie Theory and its Applications in Physics" Clausthal, August 1995*. Ed. Dobrev, Döbner, Hilgert. World Scientific, 1996
7. (with B. Ørsted) Is there an orbit method for affine symmetric spaces? In: *The Orbit Method in Representation Theory, Proceedings of a Conference held in Copenhagen August to September 1988*, Ed. M. Duflo, N.V. Pedersen, M. Vergne. Birkhäuser, 1990
8. Ph D Thesis, Die Langlands-Klassifizierung, unitäre Darstellungen und die Flensted-Jensensche fundamentale Reihe. Göttingen, 1982.
9. Several Lecture notes, posted on my web-page
10. Several publications in *Mathematica Gottingensis*, publication of the *Sonderforschungsbereich Geometry and Analysis* at the University of Göttingen.

Research publications accepted but not yet published.

1. (with H. Schlichtkrull) The Image of the Heat Transform associated to Root Systems. To appear in *Adv. Math.*
2. (with E. Ournycheva, and B. Rubin) Multiscaled wavelet transforms, Ridgelets transforms, and Radon Transform on the space of matrices. To appear in *Applied and Computational Harmonic Analysis*.
3. (with M. Davidson and M. Aristidou) Differential Recursion Relations for Laguerre Functions on Symmetric Cones. To appear in *Bulletin des Sciences Mathematiques*.
4. (with R. Fabec and A. Sengupta) Fock spaces corresponding to positive definite linear transformations. *Math. Scand.*
5. (with S. Gindikin and B. Krötz) Horospherical model for the holomorphic discrete series and the horospherical Cauchy transform. To appear in *Compositio*.
6. (with M. Aristidou and M. Davidson) Laguerre functions on symmetric cones and recursion relations in the real case. To appear in *J. Computational and Applied Mathematics*.

Submitted research publications.

1. (with S. Zheng) Function spaces associated with Schrödinger Operators: The Pöschl-Teller Potential. Submitted 2006
2. (with S. Gindikin and B. Krötz) Holomorphic horospherical transform on non-compactly causal spaces. Submitted 2006
3. (with M. Dobrescu) Coxeter Groups, Wavelets, Multiresolution and Sampling. Submitted 2006.

1.3.1.3. Edited books

In print:

1. (with T. Quinto): The Radon transform, inverse problems, and tomography. Papers from the American Mathematical Society Short Course on the Radon Transform and Applications to Inverse Problems held in Atlanta, GA, January 3–4, 2005. *Proceedings of Symposia in Applied Mathematics*, **63**. AMS Short Course Lecture Notes. American Mathematical Society, Providence, RI, 2006. xii+158 pp. ISBN: 0-8218-3930-6 44-06 (44A12)

2. (with H. Feichtinger, P. Jorgensen and D. Larson) *Mathematisches Forschungsinstitut Oberwolfach Report No. 10/2004, Mini-Workshop: Wavelets and Frames, February 15th-February 21st, 2004*, Oberwolfach, 2004,

1.3.1.4. Collections of previously unpublished material

1. Spherical functions and spherical Laplace transform on ordered symmetric spaces

and I am now working on two book projects. 1.3.1.5. Recordings

None

1.3.1.6. Miscellaneous

None

1.3.1.7. Electronic dissemination of research

Several lectures notes and talks are posted on my webpage.

1.3.2. *Other creative and artistic contributions.*

1.3.3.1. Original works presented

The following list does not include seminar talks given at LSU or tutorial seminar talks given at other Universities. Some of those more general talks are listed separately.

2006:

1. August 13, *Open problems in Harmonic Analysis, Paley-Wiener type theorems and more.* Workshop, Tambara, August 12-15, Japan.
2. August 10, *Holomorphic Aspects of the Abel/Radon Transform.* Tsukuba Conference on Integral Geometry and Harmonic Analysis. Tsukuba, August 7-10, Japan.
3. July 25, *The Image of the Segal-Bargmann transform on Symmetric Spaces and Generalizations.* Lie Group and Representation Theory Seminar, RIMS, Kyoto, Japan.
4. July 7 and July 31: Two talks on *The Heat equation, the Segal-Bargmann transform and generalization.*
5. May, Colloquium in Göttingen in honor of Professor Holdgrün's retirement.
6. April 8-9, *The Segal-Bargmann transform for the heat equation associated with root systems and symmetric spaces,* AMS-meeting, University of Notre Dame.
7. March 9, *The heat equation on symmetric spaces* MIT, joint colloquium with Brandeis, Harvard, and Northeastern.
8. March 8, *Holomorphic aspects of the Radon transform and harmonic analysis on symmetric spaces.* Lie group seminar, MIT
9. January, *Wavelets, multiresolution analysis and finite reflection groups.* The annual AMS meeting in San Antonio, Texas.

2005:

10. 11/12 *Wavelets and Radon Transform,* AMS meeting, Eugene, Orego
11. 10/9 *Differential Recursion Relations for Laguerre Functions on Symmetric Cones.* AMS Sectional meeting, Annandale-on-Hudson, New York.
12. 06/17 *The image of the heat transform for symmetric spaces.* Metz, France.
13. 06/15 *Jordan algebra, Representations and Special Functions.* International conference on harmonic analysis in Strassbourg, France: *Analyse harmonique sur les groupes de Lie et les espaces symétriques, en l'honneur de Jacques Faraut*
14. 05/19 *The image of the heat transform on symmetric spaces,* University of Paderborn, Germany
15. 04/11 *Inversion of the Radon transform with wavelets,* Workshop on "Group theoretical methods, operator theory, and non-orthogonal expansions" which was a part of the special semester on *Modern Methods of Time-Frequency Analysis* at the *Erwin Schrödinger International Institute for Mathematical Physics*, Vienna.

16. 04/09 *The Radon transform and wavelets on the space of matrices*. Workshop on “Harmonic Analysis and Applications” GSF-Research Center for Environment and Health, Institute of Biomathematics and Biometry. Germany
 17. 03/10 *The image of the Heat transform on Riemannian symmetric spaces*. Colloquium, Iowa
 18. 03/08 *Paley-Wiener Theorem for compact symmetric spaces* Mathematical Physics seminar, Iowa
 19. 01/30, *The image of the heat transform* Lie group seminar, Berkeley (this seminar is funded by NSF).
 20. 01/06–01/09, *The image of the Heat transform on Riemannian symmetric spaces*. The Franco-Nordic Congress in Reykjavik. Special session on Lie Groups/Harmonic Analysis.
 21. We had several other invitations, that we were not able to accept. Those include: Two talk at a conference in Tambov, Russia and the conference *Quantum Theory and Symmetries*, Varna, Bulgaria, 15-21 August 2005,
- 2004:
22. August 23–August 27: Holomorphic H-spherical distribution vectors and Hardy spaces. *Harmonic Analysis and Homogeneous Spaces*, retirement conference for Professor G. van Dijk, Department of Mathematics, University of Leiden.
 23. August 10-14, Horospherical realization of the holomorphic discrete series. *Lie Groups and Representation Theory*, Department of Mathematics and Computer Science, University of Southern Denmark, August 10-14, 2004.
 24. Complex methods in harmonic analysis. July 31–August 5: Banff International Research Station for Mathematical Innovation and Discovery, workshop on *Conformal Geometry*.
 25. July 19-23: Laguerre functions and polynomials of several variables. *Special Functions in Harmonic Analysis and Applications*. Kloster Irsee, Germany
 26. June 11-12 *Paley-Wiener theorem for compact symmetric spaces with even multiplicities, and applications*. Seminar Sophus Lie, Metz, France
 27. May 29 (With my student, M. Dobrescu) Wavelets without Groups. GPOTS, Texas A&M.
 28. May 13–15: Wavelets without Groups, Sixth Joint Meeting of the AMS and SMM, Huston: Designing Frames and Wavelets: From Theory to Digitiazation.
 29. April 12–19: Groups, Wavelets, and Harmonic Analysis on \mathbb{R}^n . AMS Conf. at Rider, Lawrenceville NJ, *Tomography and integral geometry*
 30. February 26: Multivariable Laguerre functions and representation theory. Analysis Seminar, University of Copenhagen, Denmark
 31. 02/24 The Fuglede Conjecture and related problems. Colloquium, University of Copenhagen
 32. Groups, Waveletsts and Function Spaces. Oberwolfach, Feb. 20. Miniworkshop on Wavelets and Frames, Oberwolfach February 15–21. Organizers: H. Feichtinger, P. Jorgensen, D. Larson, and G. Ólafsson.
 33. 01/16 Harmonic analysis on symmetric spaces and the Gelfand-Gindikin program. University of Colone, Germany
 34. 01/07 Complex methods in the Harmonic Analysis. Colloquium, University of Bochum
- 2003:
35. 2/6 *Wavelets, frames, and Representations*. Colloquium, Saint Louis University
 36. 1/17 *Groups and Frames* Annual meeting of the AMS, Baltimore, January 2003.
- 2002:
37. 12/9–13 *The Generalized Segal-Bargmann Transform and Special Functions*. Conference on *Representations of Lie groups, harmonic analysis on homogeneous spaces and quantization*. Lorentz Center, The Netherlands
 38. 11/9–11/10 *Group action on \mathbb{R}^n and frames*. AMS Meeting, Orlando, Florida, special session on *Wavelets, frames. and functional analysis*

39. 7/19 Wavelets and Representation Theory, Concentration Week on Frames, Wavelets and Operator Theory, Texas A& M
40. 7/14 Some Generalizations of the Segal-Bargmann Transform. Workshop in Linear Analysis and Probability, Texas A& M, July 12–July 17
41. 7/5 Generalization of the Laguerre Polynomials. Colloquium talk, Clausthal-Zellerfeld (Germany)
42. 6/15-6/22 : Generalization of the continuous wavelet transform and symmetric spaces. Analysis and Probability Related to solvable Lie Groups, Zakopane, Poland, June 15–22, 2002
43. 4/20 Wavelets and representation theory. Miniconference on Wavelets and frames at Texas A& M.
44. 3/8-3/10 Wavelets, Representations, and Symmetric Spaces. AMS Meeting, Georgia Tech. Special session on *Frames, Wavelets, and Operator Theory*
- 2001:
 45. 10/27 Wavelets, Lie groups, and representation theory. Workshop: Lie Groups, Lie Algebras and their Representations, University of California, Berkeley, October 27-28, 2001
 46. 10/18 Causal compactification and Hardy spaces. MSRI, Berkeley
 47. 8/17 Unitary representations with reflection symmetry. University of Cordoba, Argentina
 48. 8/10 Restriction principle and orthogonal polynomials. At the conference *XIV COLOQUIO LATINOAMERICANO DE ALGEBRA*, Sierras de Cordoba, Argentina, 7/31 – 8/10, 2001
 49. 4/27 – 4/29 The Huyghens’ Principle and Symmetric space duality. The 11th Midwest Geometry Conference. Wichita, KS, USA
 50. (with A. Pasquale) Paley-Wiener type theorems for the Θ -spherical Laplace transform.
- 2000:
 51. 11/26 Holomorphic representations and Hardy spaces. Seminar talk. Oklahoma State University, Stillwater
 52. 11/27 The Bargmann transform and the restriction principle. Colloquium, Oklahoma State University, Stillwater
 53. 07/13 The H -spherical distribution character of a holomorphic discrete series representation of an affine symmetric space. Oberwolfach. Conference *Harmonische Analysis und Darstellungstheorie topologischer Gruppen* 07.09–07.15
 54. 04/26 (presentation given by the co-author, A. Pasquale) The analytic continuation of spherical functions on NCC spaces. Oberwolfach. International conference *Representation Theory and Complex Analysis* 04.23–04.29
- 1999:
 55. 12/22: Analytic Continuation in Representation Theory and Harmonic Analysis. The 1999 Twente Conference on Lie Groups, Dec. 20-22, 1999. University of Twente
 56. 12/17: Die Harisch-Chandra c -Funktion (the Harisch-Chandra c -function). Clausthal-Zellerfeld.
 57. 08/27: The c -function for non-compactly causal symmetric spaces. At: Workshop: Analysis on Lie Groups and Symmetric Spaces. Copenhagen, August 26-27, 1999
 58. 07/13: The c -function for non-compactly causal symmetric spaces. At: III. International Workshop on Lie Theory and Its Applications in Physics, 07/11-07/14/1999, Clausthal-Zellerfeld, Germany.
 59. 06/30: Unitary Representations with Reflection Symmetry. At: Harmonic Analysis on Homogeneous real and complex Manifolds. Zakopane, Poland, June 28 – July 3, 1999
 60. 06/08: A conjugacy theorem for symmetric spaces. At: Journée Analyse Harmonique et Analyse Globale. Nancy
 61. 06/01: Unitary representations with reflection symmetry. Luminy, Analyse harmonique et analyse sur les varietes, 05/31-06/05/1999
 62. 05/26: Nancy: The c -function for non-compactly causal symmetric spaces

- 1998:
- 63. 05/26: Odense University: Analytic Continuation of Representations and Reflection Positivity.
 - 64. 05/12: Ohio State University, Causal Compactification and Hardy Spaces
 - 65. 04.3-04.4: Philadelphia, AMS-meeting, The Segal-Bargmann Transform on Bounded Symmetric Domains and Reflection Positivity
 - 66. 03/25: Odense, The Danish Lie Group Seminar: Causal Compactification and Hardy Spaces.
 - 67. The joint annual meeting of the AMS and MAA in Baltimore, January 1998: Unitary Representations of Lie groups with Reflection Symmetry.
- 1997:
- 68. 11/03: The University of Iceland, Reykjavik/Iceland, The Laplace Transform on Symmetric Spaces.
 - 69. 08/19-08/23: Copenhagen, Analysis on Lie Groups and Homogeneous Spaces. Title: Inversion Formula for the Spherical Laplace transform.
 - 70. 08/17-08/19: Clausthal-Zellerfeld, International Workshop on Lie Theory and its Applications in Physics. Title: Unitary Representations with Reflection Positivity.
 - 71. 05/04-05/10: Oberwolfach, Harmonic Analysis and Representation Theory of Topological Groups. Title: Inversion Formula for the Spherical Laplace Transform.
- 1996:
- 72. 10/5-10/6: AMS conference in Lawrenceville, New Jersey: *Wave propagation on symmetric spaces*.
 - 73. 4/18: Institut seminar, Institut Mittag-Leffler, Sweden: The wave equation, Huygens' principle and symmetric space duality.
 - 74. 3/09-3/11: Paris Workshop "Journées Programme de Gelfand-Gindikin": Causal compactification and Hardy spaces.
 - 75. 2/20: Institute seminar, Institut Mittag-Leffler, Sweden: Causal compactification and Hardy spaces
- 1995:
- 76. 6/20: Colloquium talk, Odense, Denmark: Wave Propagation and Symmetric Space Duality
 - 77. May, University of Marseilles, Luminy: Spherical Functions on Ordered symmetric Spaces.
 - 78. May, University of Marseilles, Luminy: Wave Propagation and Symmetric Space duality
 - 79. 1/6-1/7: Seminar Sophus Lie, Darmstadt: The spherical Laplace transform on ordered symmetric spaces.
- 1994:
- 80. 11/4: Danish Lie groups seminar, Copenhagen: An Inversion Formula for the Spherical Laplace Transform on Ordered Symmetric Spaces
 - 81. 10/29: AMS meeting, Stillwater, Oklahoma: Spherical Laplace Transforms and inversion formulas
 - 82. 8/18: Third Analysis Colloquium, Bern. Harmonic analysis on causal symmetric spaces
- 1993:
- 83. 10/14: Oberwolfach, Germany: The geometry of causal symmetric spaces.
 - 84. 5/29: Colloquium talk, Nice, France: Wave propagation on symmetric spaces
 - 85. Seminar talk, MIT, USA, 2.16.1993: Spherical functions on ordered symmetric spaces
 - 86. 5/27: Seminar Straßbourg-Nancy, Nancy, France: Harmonic analysis on causal symmetric spaces and the Character formula for the holomorphic discrete series
 - 87. 5/17: Iowa: The Character formula for the holomorphic discrete series and harmonic analysis on causal symmetric spaces
- 1992:
- 88. 11/19: Colloquium talk, Aarhus, Denmark: Analysis on Causal Symmetric Spaces
 - 89. 11/17: Colloquium talk, Copenhagen, Denmark: Harmonical Analysis on Ordered Spaces.

90. 9/17: Colloquium talk, Aalborg, Denmark: Huyghens princip
91. 7/22: Colloquium talk, Eichstätt: Wellenausbreitung in symmetrischen Räumen.
92. 6/3 and 8/5: The Danish Lie Group Seminar, RUC: The Character of a Holomorphic Discrete Series Representation on Symmetric Space
93. 1/16: Colloquium Göttingen: Das Prinzip von Huyghens
- 1991:
94. 11/26: Iowa: Hardy Spaces of Semisimple Symmetric Spaces
95. 11/25: Iowa, USA: Huygens' Principle on Symmetric Spaces
96. 8/26-8/30: Conference on Harmonic analyse on Lie groups, Sandbjerg, Denmark: Harmonic analysis on ordered symmetric spaces.
97. 2/14: Seminar Straßbourg-Nancy, Straßbourg: H-invariant distribution character of the holomorphic discrete series.
98. 2/3: Graduiertenkolleg in Bielefeld: Spherical functions on ordered symmetric spaces.
99. 1/1: Oberwolfach: Spherical distributions on symmetric spaces.
- 1990:
100. 12/18: Colloquium, Paterborn, Germany: Kausale Geometry und Analysis
101. 12/13: Colloquium, Darmstadt, Germany: Kausale Geometry und Analysis
102. 10/20-10/31: Potiers, France, Together with B. Ørsted (Odense) 10 lectures on 'Geometry and analysis on ordered symmetric spaces'
103. 10/9: 1990, Luminy, France: Holomorphic representations and Hardy spaces
104. 5/6: Iowa: Invariant cones and symmetric spaces
105. 5/5: Iowa: Harmonic Analysis on Symmetric spaces
106. 4/9: Colloquium Reykjavik, Iceland: Cones and harmonic analysis
107. 4/5: Copenhagen: Cones and symmetric spaces.
108. 3/9: Paris: Cones and Problems in Harmonic Analysis
109. 1/9: Srni, Czechoslovakia: Hardy spaces and holomorphic representations associated to semisimple symmetric spaces.
- 1989:
110. 5/32: Danish Lie group seminar, Odense, Denmark: Hardy Spaces on Affine Symmetric Spaces.
- 1988:
111. 3/24: Odense, Denmark: The Poisson transformation on symmetric spaces.
112. 11/4: Colloquium talk, Göttingen: Die holomorphe diskrete Reihe eines symmetrischen Raumes.
- 1987:
113. 10/21, 10/23, 11/5, 11/7: Odense, Denmark: The holomorphic discrete series for affine symmetric spaces.
114. 10/9: Danish Lie group seminar, Odense, Denmark: The Poisson transformation associated to an affine symmetric space.
- 1986:
115. 4/11: Amsterdam, Holland: The analytic continuation of the Poisson and Fourier transformation associated to a semisimple symmetric space.
- 1984:
116. 11/6: Odense, Lie group seminar, Denmark: On a series of representations related to a symmetric space.

Other presentations.

1. 06/02/2005 *Abstract harmonic analysis and wavelets* University of Aarhus, Denmark
2. 10/13/2003 Tutorial on *Wavelets and Groups* at a workshop on *Wavelets, frames and operator theory* at Georgia Tech., Atlanta

3. June/July 2002: Series of lectures at the University of Bochum, Germany, on complex methods in harmonic analysis on symmetric spaces.
4. June 2000: 6 lectures, each 90 min, at the University in Bochum, Germany, on analytic continuation in harmonic analysis and representation theory. Supported by DFG, *Globale Methoden in der komplexen Geometrie*
5. 11/29 and 12/5 1999: Introduction to Wavelets. University of Iceland.
6. 06/23 and 06/24, 1999: Introduction to symmetric spaces. University of Wroclaw, Poland. Lecture for general audience
7. 02/23-02/27, 1998: Iowa, 6 talks as *Distinguished visitor* on “Harmonic Analysis and Positivity”
8. 10/31-11/1, 1997: Reykjavik/Iceland, The 50th anniversary of the Icelandic Mathematical Society and S. Helgason’s 70th Birthday. Title: The Life and Work of S. Helgason. Part of the talk was broadcasted in the TV-news in Iceland.

1.3.3.2. Other creative activities

None

1.3.3. *Participation in Other Professional Meetings.*

- Workshop on *New Mathematics and Algorithms for 3-D Image Analysis*, Jan 9–12, 2005 at *The Institute of Mathematics and its Applications*. I was one of the organizers and did not give a talk.
- Short course on *The Radon Transform and Applications to Inverse Problems* at the Annual AMS meeting in 2005. I was one of the organizers.
- I participated in several workshops and meetings of the Focused Research Group on Wavelets, frames and operator theory, without giving a talk.

1.4. **Organization of conferences and workshops.**

1. The lead organizer of the AMS sectional meeting in Baton Rouge, March 28-30, 2008.
2. Chair of the organizing committee for a conference on *Harmonic analysis in honor of Helgason’s 80th birthday* in Iceland, August 2007.
3. Together with P. Jorgensen, D. Larson and P. Massopust, special session on *Frames and Wavelets in Harmonic Analysis, Geometry and Application*. AMS annual meeting, New Orleans, January 2007
4. With E. Grinberg, P. Kuckment, E. Quinto and B. Rubin, special session on *Radon Transform, Convex Geometry and Geometric Analysis*. AMS annual meeting, New Orleans, January 2007
5. Together with O. Bratteli (Oslo), P. Jorgensen (Iowa), D. Kribs (Ontario), and S. Segei (Lund), organization of a workshop Dec. 2–7, 2006, on *Operator methods in fractal analysis, wavelets and dynamical systems*, Banff, Canada
6. Co-organizer of a concentration week on *Frames, Banach spaces and Signal Processin* at Texas A&M, August 7–11, 2006.
7. Organizer of a workshop on *Harmonic analysis and fractal geometry* in Baton Rouge, February 24–26, 2006
8. (Together with L. Butler (Chemistry, LSU) and T. Quinto (Mathematics, Tufts)) Workshop on *New Mathematics and Algorithms for 3-D Image Analysis*, Jan 9–12, 2006 at *The Institute of Mathematics and its Applications*
9. Member of the Scientific Committee for the retirement conference in honor of J. Faraut, Strassbourg/Nancy June 10–15, 2005. Will also speak. The other members of the Scientific Committee are J-L. Clearc (Nancy) and K-H. Neeb (Darmstadt).
10. (Together with T. Quinto) organize a short course on *The Radon Transform and Applications to Inverse Problems* at the Annual AMS meeting in 2005.

11. Together with A. Faridani and T. Quinto, organized a special session at the annual meeting in Atlanta, January 2005, on *The Radon Transform and Inverse Problems*.
12. Part of an organizing team for a special semester at the Erwing Schrödinger Institute, Vienna, Spring 2005
13. Together with H. Feichtinger, P. Jorgensen, and D. Larson, organizer of a *Mini workshop* on wavelets and frames, at Oberwolfach, Feb. 15–21, 2004
14. Together with Les Butler, Physics LSU, and T. Quinto (Math. Tufts) organization of a workshop on 3D-image reconstruction. LSU, September, 2003
15. Organizer of the special session *Frames, Wavelets, and Tomography*, the AMS-meeting Baton Rouge, March 14–16, 2003
16. Organizer of the workshop *Frames and wavelets*, Baton Rouge, March 12-13, 2003
17. One of the organizers of the *Twelfth Midwest Geometry Conference*, Univ. of North Dakota, Grand Forks, North Dakota, April 2002
18. With F. Neubrander, A. Ludu and G. Lumer, organizer of the special session on *Integral Transforms* at the AMS meeting in New Orleans, January 2001
19. One of the organizers of the *Midwest Geometry Conference* in Iowa, Nov. 2000
20. Together with T. Branson, A. Sengupta and L. Smolinsky organizer of the *Midwest Geometry Conference 1998*. Louisiana State University, October 1998
21. Together with M. Flensted Jensen, Denmark, P. Sjögren, Sweden, and B. Ørsted, Denmark, organizer of the special year on “Analysis on Lie Groups” during the academic year 1995/96 at the Mittag-Leffler Institut, Sweden. Scientific organizer for the period Januar 1996 to May 1996.
22. Together with H. Schlichtkrull, organization of the “Danish Lie Group Seminar” Nov. 4 - Nov. 7. 1994
23. Organization of the ‘Danish Lie group seminar, RUC’, academic year 1991/92.
24. Together with M. Flensted-Jensen, organization of the conference ‘Fourier and Radon Transformation on symmetric spaces, in honor of Professor S. Helgason 65th birthday. Roskilde 9.10.-9.12. 1992.
25. Organization of the conferences ‘Harmonische Analyse auf Lie Gruppen und symmetrischen Räumen’, Göttingen, 1988, and ‘Harmonische Analyse und Liesche Gruppen’, Göttingen, 1991.
26. With Prof. Kneser and Prof. Patterson, organization of the conference ‘Algebraic groups and representation theory’, Göttingen, 1986.

1.4.1. *Other scholarly or creative activities.*

1.3.5.1. Membership in professional organizations

I am a member of the AMS, the Icelandic Mathematical Society and the European Mathematical Society.

1.3.5.2. Administrative duties

1.3.5.3. New standard testing methods, etc.

1.4.2. *Other awards, etc., that show recognition of scholarly achievement.*

1999: *LSU Distinguished Faculty Award* 1999

Special visits and lectures

2003: Series of tutorial lectures at the University of Bochum, Germany.

1998: Invited to give 5 lectures as *Distinguished Visitor* at the Department of Mathematics, The University of Iowa, February 1998. \$ 1,500.-

Visits:

- 2006: 5 weeks visit to Japan. The visit was supported by the University of Tokyo and the University of Kyoto.
- 2005: Visit in Paderborn and Bochum Germany, Copenhagen and Aarhus, Denmark, and Metz, France.
- 2004: Part of research in Pairs, Oberwolfach, with B. Krötz, University of Oregon. June, 2004. Partially supported by Oberwolfach.
- 2003: (a) June 2003, one week at the workshop on wavelets and frames at the University of Colorado, Boulder.
 (b) May, one week at the workshop on wavelets and frames at Vanderbilt University, Nashville.
- 2002: Visit to the University Clausthal-Zellerfeld and Bochum
- 2001 One month stay in October at the MSRI, Berkeley.
 Summer 2000, 2002, 2003 and 2005: Visit to the University of Bochum and the "Sonderforschungsbereich" there: *Globale Methoden in der komplexen Geometrie* and *Sonderforschungsbereich Tr-12, Symmetrien und Universalität in mesoskopischen Systemen*. Those visits were up to 1 month and included several tutorial talks and presentations.
- 1999: (a) 3 weeks in Nov./Dec. visit at the University of Iceland during my sabbatical. Partially supported by *The Science Institute of Iceland*.
 (b) June, visiting Professor at the University of Nancy
 (c) Visiting the University of Copenhagen, June, and the University of Wroclaw, June/July.
 Visit at the University of Odense 1987, 1988, 1989, 1996, 1997, 1999 and 2004. Mostly supported by the *Danish Research Council*.
 Visits at the University of Iowa 1990, 1991 and 1993, 1995, 1996, 1997, 1998, 2004.
- 1998: One week visit to Ohio State University during the spring;
- 1996: Stay at the Mittag-Leffler Institut, the Swedish Royal Academy of Science, January - May.
- 1990: Visiting Professor at the University of Poitiers in October. Gave a series, jointly with Prof. Bent Ørsted, of 10 lectures on Hardy spaces on compactly causal symmetric spaces.
- 1994: Visiting Professor at the University of Marseilles, Luminy. Shorter visit again 1995.
- 1993 Visit at the University in Nancy and at the University of Marseilles.
- 1991 Visit to the University in Strassbourg;
- 1990 Visit at the University 6 in Paris.

1.4.3. Other research Support/Grant Activities.

NSF grants:

1. DMS-0402068 Harmonic Analysis and Lie groups, \$100,000.-
2. 2002, Co-PI on NSF grant DMS-0139783, **COLLABORATIVE RESEARCH:** Focused Research on Wavelets, Frames, and Operator Theory. LSU part: \$ 105,529 Joint proposal with: A. Aldroubi (Vanderbilt), L. W. Baggett (University of Colorado), J. Benedetto (University of Maryland), C. Heil (Georgia Institute of Technology) P. E. T. Jorgensen (University of Iowa) D. R. Larson (Texas A& M University), and Y. Wang (Georgia Institute of Technology). The follow up proposal, submitted fall 2004 was declined.
3. 2001, Co-PI DMS-0202812, Midwest Geometry Conference: 2002-2004. PI: L. J. Peterson, North Dakota State University. \$34,800.
4. 2000, NSF Grant, DMS-0070607, Harmonic Analysis on Lie Groups and Spectral Symmetry. \$ 86,409
5. 1999, NSF Grant, DMS-9972209, Analysis and representation theory related to special symmetric spaces. \$ 81,956. Declined
6. 1998-2001: PI of the NSF-grant: Midwest Geometry Conference, 1998-2001. DMS-980377, \$ 40,000.-

7. 1997-2000: PI (with T. Branson, P. Gilkey, P. Jorgensen) NSF-U.S. Cooperative Science. Spectral Theory. INT-972277, \$ 14,900.-
8. 1996-97: NSF Grant, No DMS-9626541, \$ 40,000
9. 6/1/92-11/30/95: Co-investigator in the NSF Grant No. INT-9114401, "U.S. -Western Europe Cooperative Research in Spectral Theory (Applied Mathematics)" directed by T. Branson and P. Jorgensen (Iowa).

Other Grants, Fellowships, and travel support.

1. Visits to Paderborn (Germany), Copenhagen and Aarhus (Denmark), Metz, Strassbourg and Bochum (Germany) during the summer 2005. Most of it supported by the local University or local grants.
2. Summer 2000, 2002, 2003 and 2005: Visit to the University of Bochum and the "Sonderforschungsbereich" there: *Globale Methoden in der komplexen Geometrie* and *Sonderforschungsbereich Tr-12, Symmetrien und Universalität in mesoskopischen Systemen*
3. 2001: CRDF, Joint proposal with V. Molchanov, Tambov State University, Russia: Harmonic Analysis and Canonical Representations. §90,000. Declined
4. Member of the MSRI. October 2001. Participated in the program *Integral Geometry*, MSRI, October 2001. Around \$2,000.- and travel costs up to \$500.-
5. August, 2001: Travel costs to visit the University of Cordoba for one month.
6. Support from *Application of harmonic analysis to function spaces on real and complex manifolds*, PIs: E. Damek, A. Hulanicki, R. Urban and J. Zienkiewicz. The Polish NSF
7. Nov-Dec. 1999: Support from the Science Institute in Reykjavik, Iceland, to visit the University of Iceland.
8. 1996-98: LEQSF(1996-99)-RD-A-12, \$ 25,694
9. Spring 1996: January-May visit at the Mittag-Leffler institut. Supported by the Royal Swedish Adademy of Science and the Danish Research Council, \$15,000.-
10. 8/1/91-7/31/95: One of the Co-PI for the 'Danish Lie Group' grant supported by the Danish Research Council.
11. 2/20/1990: With T. Branson and B. Ørsted, NATO Collaborative Research Grant, No 0720/84 with the title "Conformal Spectral Theory".
12. 86-92: Fellowship at the 'Sonderforschungsbereich 170, Geometrie und Analysis' Göttingen. Supported by the German Research Council.
13. 2/83-9/83: Fellowship at the Science Institut, University of Iceland.

1.4.4. *Theses/dissertations directed.*

1. M. Aristidou (August 2005): Laguerre Functions Associated to Euclidean Jordan Algebras;
2. M. Dobrescu (August 2005): Wavelet Sets with and without Groups and Multiresolution Analysis
3. T. Johansen (August 2004): Orbit Structure on the Silov Boundary of a Tube Domain and the Plancherel Decomposition of a Causally Compact Symmetric Space, with Emphasis on the Rank One Case
4. I. Hossain (MS with concentration in Applications): Query by Image Content Using Wavelets and Gibbs-Markov Random Fields.

1.4.5. *Major areas of research interest.*

- Harmonic analysis, in particular on symmetric spaces;
- The interplay between complex geometry and harmonic analysis;

- Integral transform, in particular generalization of classical integral transforms to symmetric spaces. Here I am mainly interested in generalizations of the Fourier transform, wavelet transform and the Radon transform using geometry and group actions;
- The applications of the above mentioned integral transforms;
- The interplay between representation theory and harmonic analysis.
- Wavelet theory and applications.

1.5. Service.

1.5.1. *Student organizations advised.*

None

1.5.2. *Recruitment of students and faculty.*

I have been a member of the hiring committee for several years and played active role in bring up candidates on the meeting of the hiring committee, contacting candidates directly, send out e-mails to co-workers in USA and Europe and advertise for positions available at LSU.

I have had direct contacts to two students that later came to LSU and worked with me towards a PhD thesis.

1.5.3. *University service.*

1. Member of the *Council on Research*, 2006-
2. Member of the *Research-Related Administrative Procedures (RRAPR)* Committee, 2004-
3. Chair of the *Research Development Group in Physical Sciences*, 2006-.
4. Chair of the IRC, Department of Mathematics, 2006/2007
5. Member of the Mentoring Committee at the Department of Mathematics, 2004-
6. Member of the IRC, Department of Mathematics, 2004/2005
7. Member of the P&T committee at the A&S, 2002-2006
8. President of the A&S-senate (2003/2004)
9. Member of the Council of Policy Committees (2003/2004)
10. Chair of the Academic Oversight Committee, College of A&S, 2003/2004
11. First vice-president of the A&S-senate (2002/2003)
12. Faculty Welfare Committee, A&S-senat (chair)
13. Member of the Executive committee, Department of Mathematics, 2002-2004
14. Member of the College Senate, Fall 2001-end of summer 2005. Member of the Steering Committee, 2002-2005
15. Member of the Academic Freedom and Scholarship committee, 2001/2002
16. Member of the Committee on salaries at the Department of Mathematics, Spring 2001
17. One of the organizers and initiators for the Mathematics-Physics-Computer Science seminar, during the spring 2000. The other organizer was Ludu (Physics).
18. Chair of the VIGRE committee, 2002-
19. Initiated and now edit the new *Electronic Preprint Series* at the Department of Mathematics
20. Chair of the *Applied Mathematics Committee*, Oct. 1999-2000
21. Member of the Executive committee, Department of Mathematics, 1998-2000
22. Chair of the promotions committee for L. Smolinsky, 1998 and 1999
23. Member of the small hiring committee at the Department of Mathematics, LSU, 1998-.
24. Member of the hiring committee at the Department of Mathematics, RUC, 1992

1.5.4. *Professional service.*

1.4.4.1. Advisory boards, commissions, or agencies

None

1.4.4.2. Journals edited, manuscripts refereed, etc.

1. On the editorial board of *Journal of Lie Theory*;
2. Referee for NSF;
3. Referee work for the following journals, for some of them several articles:
 - *Acta Applicandae Mathematicae*,
 - *Advances in Computational Mathematics*,
 - *Advances in Mathematics*
 - *Acta Mathematica*,
 - *Annals of Mathematics*
 - *Annales de l'institut Fourier*,
 - *Banach Center Publications*,
 - *Communications in Analysis and Geometry*,
 - *Communications in Mathematical Physics*;
 - *Contemporary Mathematics*,
 - *Contemporary Mathematical Physics*,
 - *Indagationes Mathematicae*
 - *International Journal of Mathematics and Mathematical Sciences*;
 - *International Mathematics Research Notices*,
 - *Inventiones Mathematicae*,
 - *Journal für die reine und angewandte Mathematik, (Crelle Journal)*,
 - *Journal of Fourier Analysis and Applications*,
 - *Journal of Functional Analysis*
 - *Mathematica Scandinavica*,
 - *Mathematische Annalen*,
 - *Mathematische Nachrichten*,
 - *Trans. AMS*
 - *Transformation Groups*,
 - *Proceedings of the AMS*.
4. Referee for the *John Simon Guggenheim Memorial Foundadtion* in 2003.
5. Referee *Austrian Science Fund* and *The Icelandic Center for Research*
6. Referee for the *International Science Foundation*.
7. I have refereed book projects for *Oxford University Press* and *SIAM*. I have also refereed two textbooks for big publishers;
8. Reviewer for *Mathematical Review*.

1.5.5. *Other external service.*

1.4.5.1. Art shows/science fairs judged

Art exhibit in Iceland 1972