CURRICULUM VITAE

Slimane Adjerid
Department of Mathematics
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061-0123
adjerids@math.vt.edu
(540) 231 5945

EDUCATION:

Ph.D.	Mathematics (Mathematical Sciences), Rensselaer Polytechnic Institute
1985	Dissertation Title: Adaptive Finite Element Methods for Time Dependent Partial Differential Equations
M.S.	Mathematics (Mathematical Sciences)
1982	Rensselaer Polytechnic Institute
B.S.	Mathematics (Mathematiques)
1979	University of Algiers, U.S.T.H.B.

PROFESSIONAL CAREER:

2005 - date	Professor, Department of Mathematics, Virginia Polytechnic Institute
2010 - 2013	Graduate Program Director, Department of Mathematics, Virginia Polytechnic Institute
1998 - 2005	Associate Professor, Department of Mathematics, Virginia Polytechnic Institute
1994 - 1998	Research Associate Professor of Computer Science, Rensselaer Polytechnic Institute
1992 - 1994	Visiting Research Scientist, Department of Computer Science Rensselaer Polytechnic Institute
1990 - 1991	Visiting Professor, Department of Mathematical Sciences Rensselaer Polytechnic Institute
1987 - 1992	Associate Professor, Institut De Mathematiques University of Algiers, Algeria
1985 - 1986	Postdoctoral Associate, Department of Computer Science Rensselaer Polytechnic Institute

COURSES TAUGHT:

Course Title	Term	Year	C. hours	# Students
Multivariable Calculus	Fall	1998	3	35
Multivariable Calculus	Fall	1998	3	33
Finite Elements for PDEs	Spring	1999	3	8
Intro. to Numerical Analysis (4445)	Fall	1999	3	20
Multivariable Calculus	Fall	1999	3	39
Intro. to Numerical Analysis (4446)	Spring	2000	3	22
Finite Difference Methods for PDEs	Fall	2000	3	2
Multivariable Calculus	Fall	2000	3	36
Intro. to Numerical Analysis (4446)	Spring	2001	3	16
Multivariable Calculus	Spring	2001	3	41
Intro. to Numerical Analysis (4445)	Fall	2001	3	23
Multivariable Calculus	Fall	2001	3	39
Intro. to Numerical Analysis(4445)	Spring	2002	3	22
Finite Elements for PDEs(5484)	Spring	2002	3	6
Multivariable Calculus(2224)	Fall	2002	3	36
Scientific Computing(4414)	Fall	2002	3	17
Multivariable Calculus(2224)	Spring	2003	3	39
Numerical Analysis(5466)	Spring	2003	3	10
Numerical Analysis(5465)	Fall	2003	3	16
Adv. Top. in Numer. Analysis (6425)	Fall	2003	3	6
Multivariable Calculus(2224)	Spring	2004	3	35
Numerical Analysis(5466)	Spring	2004	3	9
Multivariable Calculus(2224)	Summ.	2004	3	28
Multivariable Calculus(2224)	Fall	2004	3	37
Numerical Analysis(5465)	Fall	2004	3	16
Numerical Analysis(5466)	Spring	2005	3	14
Multivariable Calculus(2224)	Spring	2005	3	37
Multivariable Calculus(2224)	Summer I.	2005	3	35
Intro. Numerical Analysis(4445)	Fall	2005	3	28
Finite Elements (5484)	Spring	2006	3	7
Intro. Numerical Analysis(4446)	Spring	2006	3	32
Multivariable Calculus(2224)	Spring	2007	3	43
Linear Algebra (3144)	Spring	2007	3	29
Intro. Numerical Analysis(4445)	Summer I	2007	3	25
Multivariable Calculus(2224)	Fall	2007	3	47
Finite Difference (5474)	Fall	2007	3	7
Finite Elements (5484)	Spring	2008	3	8

Intro. Numerical Analysis(4445)	Summer I	2008	3	16
Numerical Analysis(5465)	Fall	2008	3	19
Finite Elements (5484)	Spring	2009	3	9
Numerical Analysis(5466)	Spring	2009	3	11
Intro. Numerical Analysis(4445)	Summer I	2009	3	16
Numerical Analysis(5465)	Fall	2009	3	13
Multivariable Calculus(2224)	Fall	2009	3	60
Numerical Analysis(5466)	Spring	2010	3	7
Intro. Numerical Analysis(4445)	Summer I	2010	3	18
Intro. Numerical Analysis(4446)	Spring	2011	3	18
Intro. Numerical Analysis(4445)	Summer	2011	3	15
Numerical Methods for ODEs(5444)	Fall	2011	3	8
Finite Elements (5484)	Spring	2012	3	10
Intro. Numerical Analysis(4445)	Summer	2012	3	10
Numerical Methods for ODEs(5444)	Fall	2012	3	13
DG Methods (5415)	Spring	2013	3	7
Numerical Analysis(5465)	Fall	2013	3	17
Numerical Analysis(5466)	Spring	2014	3	13
Numerical Analysis(4466)	Spring	2014	3	15
Intro. Numerical Analysis(4445)	Summer	2014	3	9
Numerical Methods for ODEs(5444)	Fall	2014	3	3
Intro. Numerical Analysis(4445)	Fall	2014	3	25
Numerical Analysis(4466)	Spring	2015	3	23
Intro. Numerical Analysis(4445)	Fall	2015	3	31
Numerical Analysis(4466)	Spring	2016	3	27
Finite Elements (5484)	Spring	2016	3	17
Intro. Numerical Analysis(4445)	Summer	2016	3	16
Introduction to Linear Algebra(2114)	Fall	2016	3	43
Numerical Methods for ODEs(5444)	Fall	2016	3	4
Introduction to Linear Algebra(2114H)	Spring	2017	3	9
Intro. Numerical Analysis(4445)	Summer	2017	3	18
Intro. Numerical Analysis(4445)	Fall	2017	3	32
Finite Elements (5484)	Spring	2018	3	8
Introduction to Linear Algebra(2114)	Spring	2018	3	36
Intro. Numerical Analysis(4445)	Fall	2018	3	21
Introduction to Linear Algebra(2114)	Fall	2018	3	46

PROFESSIONAL ORGANIZATIONS AND ACTIVITIES:

Member:
U.S. Association for Computational Mechanics.

International Association of Computational Mechanics
Society for Industrial and Applied Mathematics.

Co-organized a minisymposium on discontinuous Galerkin methods and chaired two sessions, SIAM National Meeting, July 2002. Philadephia.

Co-organized a minisymposium on discontinuous Galerkin methods at the Second MIT conference on Computational solid and fluid mechanics, June 2003.

Co-organized a minisymposium on discontinuous Galerkin methods at the Second MIT conference on Computational solid and fluid mechanics, June 17-23, 2003. Boston.

Co-organized a minisymposium on discontinuous Galerkin methods at 5th International Congress on Applied and Computational Mathematics (ICIAM), July 7-11, 2003. Sydney, Australia.

Co-chairman of a conference on Adaptive Methods for PDEs and Large Scale Computations (ADAPT03), October 11-12, 2003, Troy, New York.

Chaired the first session at the Conference on Adaptive Methods for PDEs and Large Scale Computations,October 11, 2003, Troy, New York.

Chaired the closing session at the Conference on Adaptive Methods for PDEs and Large Scale Computations,October 12, 2003, Troy, New York.

Chaired a session on composite materials at the ASME meeting, Blacksburg, June 27-30, 1999.

Chaired a plenary session at Com2Mac International Conference on Computational Mathematics, Pohang, Korea, July 2-5, 2001.

Co-Organized a minisymposium on discontinuous finite element methods, at the 6th World Congress on Computational Mechanics, September 5-10, 2004, Beijing, China.

Co-Chaired two sessions at the 6th World Congress on Computational Mechanics, September 5-10, 2004, Beijing, China.

Co-Organized a minisymposium on discontinuous Galerkin methods at the Third MIT Conference on Computational Fluid and Solid Mechanics, June 14-17, 2005, Boston.

Co-Organized a minisymposium on new advances on discontinuous Galerkin methods at 8th USCCM, July 26-28, 2005, Austin, Texas.

Co-Organized a minisymposium on discontinuous finite element methods, at the 7th World Congress on Computational Mechanics, July 16-22, 2006, Los Angeles.

Co-Organized a minisymposium on new advances on discontinuous Galerkin methods at 9th USCCM, July 23-26, 2007, San Francisco, CA.

Co-Organized a minisymposium on discontinuous finite element methods, at the 8th World Congress on Computational Mechanics, June 30-July 5, 2008, Venice Italy.

Co-Organized a minisymposium on advances on discontinuous finite element methods, at the 10th US National Congress on Computational Mechanics, June 16-19, 2009, Columbus, Ohio.

Chaired several sessions of minisymposium on advances on discontinuous finite element methods, at the 10th US National Congress on Computational Mechanics, June 16-19, 2009, Columbus, Ohio.

Co-Organized a minisymposium on discontinuous finite element methods, at the 10th World Congress on Computational Mechanics, July 13-July 18, 2012, Sao Paulo, Brazil.

Editorship:
Associate Editor: Journal of Mathematical Problems in Engineering (up to 2010).
Guest Editor of a special issue: Journal of Applied and Computational Mathematics(2003-2004). Associate Editor: Journal on Advances in Numerical Analysis (current).
Curator of online Encyclopedia : Scholarpedia, (current)

Referee for:
SIAM Journal on Numerical Analysis; SIAM Journal of Scientific Computing; Journal of Computational Physics; Journal of Computational and Applied Mathematics, Journal of Computer Methods in Applied Mechanics and Engineering; IMACS Journal on Applied Numerical Mathematics; International Journal on Computers and Mathematics, Journal of Vibration and Control, Journal for Applied Mathematics and Physics, Computers and Structures, Numerische Mathematik, Journal of Nonlinear Dynamics, ACM Transactions of Mathematical Software; Journal of Mathematics of Computation; Computers and Structures; IMA Journal of Numerical Analysis, Arab Journal on Mathematical Sciences, Journal of Scientific Programming, Journal of Numerical Methods for PDEs, Journal of Computers and Mathematics with Applications, Journal on wave motion, Journal of Computational Mathematics, Kuwait Journal of Science, Journal on advances in computational mathematics

National Science Foundation, Department of Energy, U.S. Army Research Office and

U.S. Air Force Office of Scientific Research, Austrian Research Foundation, National Research Council of Canada. University of British Columbia, Vancouver, Canada, Department of Energy.

AWARDS:

1975 Prize of Excellence in Baccalaureate Examination to Enter The University of Algeria (Awarded by the President of Algeria)

1980 Graduate Fellowship from Algerian Government for Ph.D.

1985 Joaquin B. Diaz Memorial Prize for Excellence in Research Rensselaer Polytechnic Institute

2016 Scholar of the Week (Vice president for Research) Virginia Tech.

PRESENTATIONS:

Invited Short Courses:

1 "Numerical Methods for Multiphase Flow ", two and half hours, The Center for Multiphase Research at Rensselaer Polytechnic Institute, Troy, New York, June 23-24, 1997

2 "Discontinuous Galerkin Finite Element Methods", 12 hours, Ecole Polytechnique de Tunisie. January 6-9, 2004, Tunis, Tunisia

3 "Discontinuous Galerkin Finite Element Methods", 12 hours, Ecole Polytechnique de Tunisie. January 5-8, 2005, Tunis, Tunisia.

4 "Discontinuous Galerkin Finite Element Methods", 12 hours, Ecole Polytechnique de Tunisie. January, 2006, Tunis, Tunisia.

Invited Presentations:

5 "Adaptive finite element methods for time dependent partial differential equations," Invited Speaker, Workshop on adaptive finite element methods, University of Maryland, College Park, June, 1986.

6 "Adaptive finite element methods for partial differential equations," Invited Colloquium Speaker, Institut de Mathematiques, University of Algiers, 1988.

7 "Moving finite elements for parabolic systems," Invited Colloquium Speaker, Department of Mathematics Colloquium, L'Ecole Normale Superieure, Algiers, 1989.

8 "A posteriori finite element error estimation for one- and two-dimensional parabolic systems using bi-p approximations," Invited Colloquium Speaker, Texas Institute of Computational Mechanics, University of Texas at Austin, 1990.

9 "A posteriori finite element error estimation for one-and two-dimensional elliptic and parabolic systems using bi-p approximations," Invited Colloquium Speaker, Department of Mathematical Sciences, Rensselaer Polytechnic Institute, Troy, 1991.

10 "Stable high-order finite element methods for singularly perturbed problems", Invited Colloquium Speaker, Institut de Mathematiques, Algiers, 1991.

11 "A posteriori error estimation for elliptic and parabolic systems using hierarchical finite element basis," Invited Speaker, Workshop on Adaptive Methods and Mesh Generation, IMA, University of Minnesota at Minneapolis, 1993.

12 "Adaptive finite element methods for composite process modeling," Invited Speaker, ARPA Review, April 1994.

13 "Modeling and numerical solution of fiber coating by chemical vapor deposition," Invited Speaker at minisymposium on new materials processes, *Aeromat 95*, ASM International's Sixth Advanced Aerospace Materials and Processes Conference, Anaheim, May 6-11, 1995.

14 "Modeling and numerical solution of fiber coating by chemical vapor deposition,", Invited Speaker at minisymposium on numerical simulations of new material processes, Third U.S. National Congress on Computational Mechanics, Dallas, June 12-14, 1995.

15 "Modeling and adaptive finite element methods for composite materials processing," Invited Speaker, ARPA Review, May 1995.

16 "A posteriori error estimation for parabolic systems," Invited Speaker at Workshop on the Method of Lines for Time-Dependent Problems, University of Kentucky at Lexington, May 31-June 3, 1995.

17 "Modeling and adaptive methods for oxidation of composite ceramic materials," Invited Speaker at minisymposium on Mechanism-Based Design of High-Temperature Composite Structures, 21st American Ceramic Society Annual Cocoa Beach Conference on Composites, Advanced Ceramics, Materials and Structures, Cocoa Beach, January 12-16, 1997.

18 "Adaptive and parallel finite elements methods for crystal growth modeling", Invited Speaker at minisymposium on Grystal Growth Simulations, Fourth U.S. National Congress on Computational Mechanics, San Francisco, August 6-8, 1997.

19 "Adaptive finite element methods for time-dependent partial differential systems", Invited Speaker, Department of Mathematics, Virginia Tech., Blacksburg, March 17, 1998.

20 "A posteriori error estimation techniques for the discontinuous Galerkin method", Invited Speaker at minisymposium on Discontinuous Galerkin Finite Element Methods, International Conference on FEM for flow problems, Texas University at Austin, May 2000.

21 "A posteriori error estimation techniques for the discontinuous Galerkin method", Invited Speaker at Minisymposium on A posteriori error estimation, International Conference on hp-Finite elements on the occasion of the 60th birthday of Barna Szabo, Washington University, St Louis, May-June 2000.

22 "A posteriori error estimation procedures for hyperbolic problems", Invited Speaker at Minisymposium on parallel and adaptive methods for Partial Differential Equations, one-hour lecture, International IMACS Conference on Applied Mathematics and Computer Simulations, Lausanne, Switzerland, August 2000.

23 "A posteriori error estimation for the wave equation", Invited Speaker at Scientific Computation Research Center, Rensselaer Polytechnic Institute, Troy, New York, February 7, 2001.

24 "A posteriori error estimation procedure for the discontinuous Galerkin method for hyperbolic problems," Invited speaker at Special session on finite element analysis. American Mathematical Society Western Section Meeting, Las Vegas, April 21-22, 2001.

25 " A posteriori error estimation for hyperbolic partial differential equations", Invited Speaker at a special session on postprocessing of finite elements. Com2Mac International Conference on Computational Mathematics, Pohang, Korea, July 2-5, 2001.

26 "A posteriori error estimation for hyperbolic problems", Invited Speaker at a special session on discontinuous Galerkin methods. Sixth US National Congress on Computational Mechanics, Dearborn, August 1-3, 2001.

27 "A posteriori error estimates for discontinuous Galerkin finite element errors", Invited Speaker at special session on advances in computational Mechanics, 14 US National Congress of Theoretical and Applied Mechanics, Blacksburg, June 23-27, 2002.

28 "A posteriori error estimates for discontinuous Galerkin finite element errors", Organizer of minisymposium on discontinuous Galerkin method at SIAM Annual Meeting, Philadelphia, July 7-11, 2002.

29 "A posteriori error estimates for discontinuous Galerkin finite element errors", Invited Speaker at the IMACS International Congress on Adaptive Methods for PDEs, The Fields Institute, Toronto, August 6-9, 2002.

30 "Flexible Galerkin Finite Element Methods," Second MIT Conference on Computational Fluid and Solid Mechanics. June 2003, Boston, Massachusetts, June 17-22, 2003

31 "A posteriori DG error estimation ", International Congress on Industrial and Applied Mathematics 2003 (ICIAM03), Sydney Australia, July 7-11, 2003.

32 "A posteriori Error Estimation for Hyperbolic Problems," Ecole Polytechnique de Tunisie, Tunis, Tunsia, May 28, 2003.

33 "A posteriori Error Estimation for Hyperbolic Problems," Universite des Sciences and de Technology (USTHB), Algiers, Algeria, June 4, 2003.

34 "Superconvergence and Error Analysis for the HP-Discontinuous Finite Element Method," 7th Congress of the United States Association on Computational Mechanics , Albuquerque, New Mexico, July 27-31, 2003.

35 "A posteriori Error Estimation for Second-order hyperbolic problems," 7th Congress of the United States Association on Computational Mechanics , Albuquerque, New Mexico, July 27-31, 2003.

36 "Superconvergence and Error Estimation for the hp-Discontinuous Finite Element Method", International Conference on Spectral and High Order Methods, Providence, Rhode Island, June 21-25, 2004

37 "Superconvergence and Error Estimation for the hp-Discontinuous Finite Element Method", 6th World Congress on Computational Mechanics, Beijing, China, September 5-10, 2004

38 "A posteriori Error Estimation for Second-order hyperbolic problems," 6th World Congress on Computational Mechanics, Beijing, China, September 5-10, 2004

39 "Superconvergence of the Discontinuous Finite Element Method", South East Atlantic SIAM Conference, Charleston, South Carolina, March 25-26, 2005.

40 "Superconvergence and Error Estimation for the Discontinuous Finite Element Method", Third MIT conference on fluid and solid mechanics, Boston, June 14-17, 2005.

41 "Efficient A Posteriori Error Estimates For the Wave Equation", Third MIT conference on fluid and solid mechanics, Boston, June 14-17, 2005.

42 "Superconvergence and Error Estimation for the Discontinuous Finite Element Method", USACM Congress on Computational Mechanics, July 25-28, 2005.

43 "Superconvergence of the Discontinuous Finite Element Method", USACM Congress on Computational Mechanics, July 25-28, 2005.

44 "New advances in Superconvergence and Error Estimation for the Discontinuous Finite Element Method", Seven World Congress on Computational Mechanics, Los Angeles, California (WCCM7), July 16-22, 2006.

45 "Superconvergence and Error Estimation for the Discontinuous Finite Element Method", FEMTEC 2006, University of Texas at El Paso, December 11-15, 2006.

46 "A Posteriori Error Estimation for the Discontinuous Finite Element Method", SIAM Conference on Computational Science Engineering, Costa Mesa, California, February 19-23, 2007.

47 "Superconvergence and Error Estimation for the Discontinuous Finite Element Method", Department of Mathematics at Texas AM University, College Station, Texas, April 2007, (All travel expenses paid for by TAMU.)

48 "A Posteriori Error Estimation for the Discontinuous Finite Element Method", 9th USACM Congress, San Francisco, July 2007,

49 "Superconvergence and a Posteriori Error Estimation for DG methods on unstructured Grids", 9th World Congress on Computational Mechanics, June 30-July 4, 2009, Venice, Italy.

50 "Error estimation for linear hyperbolic systems", SIAM Conference on computational science and engineering, Miami, Florida, February, 2009.(Jointly given with Thomas Weinhart)

51 "Error Estimation of Discontinuous Galerkin Errors", 33rd SIAM Southeastern-Atlantic Conference, 2009, University of South Carolina, Columbia, April 4-5, 2009.

52 "Residual-Based A Posteriori Error Estimation for DG Methods", Conference of the Mathematics of Finite Elements and Applications (MAFELAP), Brunel University, London, June 9-12.

53 " Residual-Based A Posteriori Error Estimation for DG Methods", 10th US National Congress on computational mechanics, Columbus, Ohio, July , 2009.

54 Keynote speaker, "The discontinuous finite element method" International Conference on Mathematical Applications in Engineering (ICMAE'10)", Kuala Lumpur, Malaysia, 3-5 August, 2010.

55 "*A posteriori* error analysis", The graduate seminar, Virginia Tech, April 30, 2010.

56 "Superconvergence and error estimation for DG methods", SEARCDE conference, Blacksburg, 1-2 October, 2010.

57 Superconvergence and error estimation for LDG methods applied to convection-diffusion problems. 11th National Congress on Computational Mechanics, Minnesota, July 25-28, 2011.

58 A discontinuous Galerkin method for hyperbolic problems on tetrahedral meshes: A posteriori error estimation, International Congress on Industrial and Applied Mathematics, Vancouver, BC, Canada, July 18-22, 2011.

59 Attended the IMA workshop on "Numerical Solutions of Partial Differential Equations: Novel Discretization Techniques, Minneapolis, November 1-5, 2010. By invitation only with all expenses paid by the IMA.

60 S. Adjerid, A Posteriori DG Error Estimation and Superconvergence on Tetrahedral Meshes, Finite Element Circus, April 13-14, April 13-14, 2012, Rutgers University.

61 S. Adjerid, Guest speaker, 1 hour, Accurate Error Estimates and Superconvergence for DG Methods. Barrett Lectures at University of Tennessee, Knoxville, TN, May 9-11, 2012. (All travel expenses paid by University of Tennessee plus a honorarium).

62 S. Adjerid, A Posteriori DG Error Estimation and Superconvergence on Tetrahedral Meshes, 10th World Congress on Computational Mechanics, July 8-13, 2012, Sao Paulo, Brazil.

63 S. Adjerid, High order Immersed Methods for Interface Problems, ICOSAHOM International Conference on High-Order and Spectral Methods, June 25-29, 2012, Tunis, Tunisia. (gave the talk instead of M. Benromdhane who was not able to attend the conference).

64 S. Adjerid, Plenary Speaker, 1 hour, A Posteriori DG Error Estimation and Superconvergence on Tetrahedral Meshes, RAMA8 International Conference on Mathematical Analysis and Applications, November 26-29, 2012, Algiers, Algeria. (Most travel fees paid by conference organizers).

65 Adjerid, S., High order immersed finite element methods for interface problems, SIAM Conference on Computational Science and Engineering, Boston, February 25-March 1, (2013)

66 Adjerid, S., A posteriori error estimation for convection problems, SIAM Conference on Computational Science and Engineering, Boston, February 25-March 1, (2013)

67 Adjerid,S., High order immersed finite element methods for partial differential equations, US National Congress on Computational Mechanics, Raleigh, NC, July 22-25, (2013).

68 Adjerid, S., High order immersed finite element methods for interface problems, Gulf International Conference on Applied Mathematics, Kuwait, November 19-21, (2013). (invited speaker, paid travel expenses).

69 Adjerid, S., Higher-order immersed methods for interface methods, AMS sectional Meeting, Knoxville, March 21-23, 2014.

70 Adjerid, S., Higher-order immersed discontinuous Galerkin methods, World Congress on Computational Mechanics, Barcelona, Spain, July 19-25, 2014.

71 Adjerid S., Immersed DG methods for wave propagation in nonhomogeneous media, SIAM meeting for central states, Rolla, April 11-12, 2015, organized by M. Baccouch

72 Adjerid, S., Immersed method for the Stokes interface problem, SIAM meeting for central states, Rolla, April 11-12, 2015, organized by Xu Zhang

73 Adjerid S.; Immersed Finite Element Methods for Interface Problems, Finite Element Circus, March 27-28, George Mason University, Fairfax, VA

74 Adjerid S., Immersed Finite Element Methods for Interface Problems: 13rd US-NCCM, July 26-30, 2015, San Diego, CA

75 Adjerid S., Immersed DG Methods for Inhomogeneous Acoustic Problems, Finite Element Circus, April 15-16, 2016, University of Maryland, College Park.

76 Adjerid S., Immersed DG Methods for Inhomogeneous Acoustic Problems World Congress on Computational Mechanics, July 24-29, 2016, Seoul, South Korea.

77 Adjerid S., High Order Immersed methods, The Helen Barton Lecture series, October 21, 2016, UNC Greensboro, NC.

78 Adjerid S.,(Keynote 1 hour) High Order Immersed finite element methods for Interface problems, AMS southeastern section meeting, November 12-13, 2016, Raleigh, NC.

79 Adjerid S.,(Keynote 1 hour) High Order Immersed finite element methods for Interface problems, Midwest Numerical Analysis Day, April 22, 2017, Omaha, NE.

80 Adjerid S.,(Invited) High Order Immersed finite element methods for Interface problems, Mathematics Colloquium, October 27, 2017, Blacksburg, VA.

81 Adjerid S.,High Order Immersed finite element spaces by a least-squares approach., Finite Element Circus, November 10-11, 2017, Baltimore, MD.

82 Adjerid S.,High Order Immersed finite element spaces by several approaches, Spring AMS Central sectional meeting, April, 2018, Columbus, OH.

83 Adjerid S.,High Order Immersed finite element spaces for interface problems, Fall AMS Central Sectional Meeting, October 21-22, 2017, Ann Arbor, MI.

Contributed Presentations:

84 "Moving finite elements for time-dependent partial differential equations," Clarkson University, Potsdam, 1984.

85 "Adaptive finite element methods for time dependent partial differential equations," contributed paper, SIAM National Meeting, Boston, 1986.

86 "Adaptive finite element methods for parabolic systems," First International Conference on Industrial and Applied Mathematics (ICIAM), Paris, 1987.

87 "A posteriori finite element error estimation for one-dimensional parabolic systems," contributed paper, 21st Conference on Numerical and Mathematical Models, Societe des Mathematiques Appliquees et Industrielles (SMAI), Loctudy, France, 1990.

88 "A posteriori error estimation procedure for fourth-order elliptic problems", contributed paper, First SIAM Conference on Computational Science and Engineering, Washington DC, September 2000.

89 "A posteriori finite element error estimates for second order hyperbolic problems", Contributed paper, SIAM Annual meeting, San Diego, California, July 11-12, 2001.

GRANT SPONSORSHIP:

ARPA/AFOSR	Consortium for Crystal Growth Research	F49620-95-1-0407	Vish, P. Project Director	06/01/95- 05/30/2000	5M
AFOSR	Modeling and Simulation of CVD Processes for Manufacturing Ceramic Composites	F49620-94-C-0091	Co PI Flaherty Hudson and Shephard	09/30/94- 06/29/95	60K
DARPA/ONR	Mechanism-Based Design of Composite Structures	N00014-92J-1779	Dvorak Project Director	05/01/92- 04/30/97	4M
NSF	Software for Transient Parallel Adaptive Finite Element Computations	NSF9720227	Co PI Shephard Flaherty	1997	300K
SANDIA	A Posteriori Error Estimation for Flow Problems	SANDIA	Co PI Flaherty	04/01/99 03/31/2000	47K
SANDIA	A Posteriori Error Estimation for Hyperbolic Problems	SANDIA	Co PI Flaherty	04/01/2000 03/31/2001	73K
SANDIA	A Posteriori Error Estimation for Hyperbolic Problems	SANDIA	Co PI Flaherty	04/01/2001 09/16/2002	107K
NSF	Conference on Adaptive Methods for PDEs and Large-Scale Comp.'	NSF/DMS-0318432	Co PI P. Moore J. Teresco [25]	08/05/2003 08/04/2004	5K
USARO	Conference on Adaptive Methods for PDEs and Large-Scale Comp.'	USARO# DAAD19-03-1-0264	Co PI P. Moore J. Teresco	08/08/2003 12/31/2004	10K
NSF	Adaptive Discontinuous Galerkin Methods for Transient PDEs	NSF/DMS-427987	Co PI Flaherty	10/01/2000 09/30/2005	300K
State Dep.	M. Sc. Program In Computational Mech. at PST and Impacts on Development in Tunisia	S-ECAAS-02- GR-279(JY)	PI. Nayfeh, CoPIs Hajj Ragab, Adjerid Gurdal, Scott	09/2002- 09/2005	$187,181
NSF	Discontinuous Galerkin Methods for PDEs	NSF/DMS-0511806		09/01/2005 08/31/2008	110K
NSF	Discontinuous Immersed Finite Element Methods	NSF/DMS	P.I. Lin T. Co PI. Adjerid	08/01/2007 07/31/2010	150K
NSF	Discontinuous Finite Elements Super. Conv. and Estimation	NSF/DMS	P.I. Adjerid S.	09/01/2008 07/31/2013	180K
NSF	Immersed FEM for Interface Problems	NSF/DMS	P.I. Lin T. Co PI. Adjerid	08/01/2010 07/31/2015	210K

PUBLICATIONS:

Journal Publications:

1 Adjerid, S. and Flaherty, J.E.[1], "A moving finite element method with error estimation and refinement for one-dimensional partial differential equations," *SIAM J. Numer. Anal.*, 23 (1986), 778-796.

2 Adjerid, S. and Flaherty, J.E.[1], "A moving finite element method with local refinement for parabolic partial differential equations," *Comput. Methods Appl. Mech. Eng.*, 55 (1986), 3-26.

3 Adjerid, S. and Flaherty, J.E.[1], "A local refinement finite element method for two-dimensional parabolic systems," *SIAM J. Sci. Stat. Comput.*, 9 (1988), 792-810.

4 Adjerid, S. and Flaherty, J. E.[1], "Second order finite element approximations and a posteriori error estimation for two-dimensional parabolic systems," *Numer. Math.*, 53 (1988), 183-198.

5 Adjerid, S., Flaherty, J. E.[1], Moore, P. K.[2], and Wang, Y.[3], " High-order adaptive methods for parabolic systems," *Physica D*, 60 (1992), 94-111.

6 Adjerid, S., Flaherty, J. E.[1], and Wang, Y.[3], "A posteriori error estimation and h-p adaptive finite element method for one-dimensional parabolic systems," *Numer. Math.*, 65 (1993), 1-21.

7 Adjerid, S., Aiffa, M.[8], and Flaherty, J. E.[1] " High-order finite element methods for singularly-perturbed elliptic and parabolic problems," *SIAM J. Appl. Math.*, 55 (1995), 520-543.

8 Adjerid, S., Flaherty, J. E.[1], Hillig, W.[5] , Hudson, J. B.[6], and Shephard, M. S.[4], "Modeling and the adaptive solution of reactive vapor infiltration problems," *Model. and Simul. in Mat. Sci. Engng.*, 73 (1995), 737-752.

9 Hillig, W.[5], Adjerid, S., Flaherty, J. E.[1], and Hudson, J. B.[6], "The siliciding of molybdenum, the effect of combined diffusion and kinetic transport barriers in multi-phase solid state reactions with a vapor reactant," *Journal of Materials Science*, 31 (1996), 5865-5871.

10 Adjerid, S., Belguendouz, B.[9], and Flaherty, J. E.[1], "A posteriori finite element error estimation for diffusion problems," *SIAM J. Sci. Comput.*, 21, (1999), 728-746.

11 Adjerid, S., Babuska, I.[10], and Flaherty, J. E.[1], "A posteriori error estimation for the finite element method-of-lines solution of parabolic problems," *Math. Models Meth. Appl. Sci.*, 9 (2) (1999), 261-286.

12 Adjerid, S., Flaherty, J. E.[1], Hudson, J. B.[6], and Shephard, M. S.[4], "Modeling and simulation of CVD processes for manufacturing ceramic composites," *Comput. Methods Appl. Mech. Eng.*, 172 (1999), 233-308.

13 Flaherty, J.E.[1], Ohsumi, T.K.[12], Borocas, V.[13], Adjerid, S., and Aiffa, M.[8], "Adaptive finite element analysis of the anisotropic biphasic theory of tissue-equivalent mechanics", *J. Biomech. Eng.*, 3, (2000), 215-229.

14 Adjerid, S., Aiffa M.[8] and Flaherty J.E.[1], "Hierarchical finite element bases for triangular and tetrahedral elements", *Comput. Methods Appl. Mech. Eng.*, 190, (2001), 2925-2941.

15 Adjerid, S., Flaherty, J. E.[1], and Krivodonova, L.[14], A posteriori estimation of discontinuous Galerkin finite element error for hyperbolic problems, *Journal of Computer Methods in Applied Mechanics and Engineering.*, 191, (2002), 1097-1112.

16 Adjerid, S., "A posteriori finite element error estimation for fourth-order elliptic equation", Computer Methods in Applied Mechanics and Engineering, 191, (2002).

17 Adjerid, S. "A posteriori finite element error estimation for second-order hyperbolic problems", *Computer Methods in Applied Mechanics and Engineering*, 191, (2002) 4699-4719.

18 Adjerid, S. and Massey T. C.,[20] "A posteriori Error estimation of discontinuous finite element error for two-dimensional hyperbolic problems", Computer Methods in Applied Mechanics and Engineering, 191, (2002) 5877-5897.

19 Adjerid S. and Klauser A. [21], Superconvergence of Discontinuous Finite Element Solutions for Convection Diffusion Problem, Journal of Scientific Computing, 22/23, (2005), 5-24.

20 Adjerid S. and Salim M. [22], Even-odd Goal-oriented a Posteriori Error Estimation for Elliptic Problems, Applied Numerical Mathematics, 55, (2005), 384-402.

21 Adjerid, S. and Massey T. C., [20] Superconvergence of discontinuous finite element solutions for nonlinear hyperbolic problems, Computer Methods in Applied Mechanics and Engineering, 195, p.3331-3346, 2006.

22 S. Adjerid, A posteriori Error estimation of the method of lumped masses applied to second-order hyperbolic problems, Computer Methods in Applied Mechanics and Engineering, 195, p. 4203-4219, 2006.

23 S. Adjerid and H. Temimi, A discontinuous Galerkin method for higher-order differential equations, Computer Methods in Applied Mechanics and Engineering, 197, 202-218, 2007.

24 S. Adjerid and T. Lin, Higher-order Immersed discontinuous Galerkin methods, Internation Journal of Information and Systems Sciences, 3, p. 555-568, 2007.

25 S. Adjerid and M. Baccouch, The discontinuous Galerkin method for Two-dimensional problems. Part I: Superconvergence error analysis, Journal of Scientific Computing, 33, 75-113, 2007.

26 S. Adjerid and M. Baccouch, The discontinuous Galerkin method for Two-dimensional problems. Part II: A posteriori error analysis, Journal of Scientific Computing, Vol 38, pp. 15, 2009.

27 S. Adjerid and T. Lin, Higher-order immersed finite element methods, Appl. Num. Meth., 59, pp. 1303–1321, 2009.

28 S. Adjerid and T. Weinhart [27], Discontinuous Galerkin error estimation for linear symmetric hyperbolic systems, Journal of computer methods in applied mechanics and engineering, 198, pp.3113–3129, 2009.

29 H. Rakha, P. Praveen and S. Adjerid, A simplified behavioral vehicle longitudinal motion model, *Transportation Letters: The International Journal of Transportation Research*, 1, pp. 129-144, 2009.

30 S. Adjerid and H. Temimi, A discontinuous Galerkin method for the wave equation, *Journal of computer methods in applied mechanics and engineering*,200, 837-849, 2011.

31 S. Adjerid and T. Weinhart, A posteriori estimates of discontinuous Galerkin errors for linear symmetrizable hyperbolic systems, *mathematics of computation*, 80, 1335-1367, 2011.

32 S. Adjerid and T. Weinhart, Estimation for discontinuous Galerkin errors for linear symmetric hyperbolic systems, *Applied Numerical Mathematics*, 76 101-131 (2014)

33 S. Adjerid and M. Baccouch, Asymptotically Exact *A Posteriori* Error Estimates for a One-dimensional Linear Hyperbolic Problem. *Journal of Applied Numerical Mathematics*, 60, 903-914, 2010.

34 S. Adjerid and M. Baccouch, Discontinuous Galerkin error estimation for two dimensional hyperbolic problems on unstructured meshes, *Journal of computational and applied mathematics*, 200, 162-177,2011. , 2011.

35 S. Adjerid and I. Mechai, Discontinuous Galerkin error estimation for hyperbolic problems on tetrahedral meshes, *Computer methods in applied mechanics and engineering*, 201-204, 157-178, 2012.

36 S. Adjerid and M. Baccouch, A superconvergent local discontinuous Galerkin method for elliptic problems, *Journal of Scientific Computing*, 52, p. 113-152, 2012.

37 S. Adjerid and H. Temimi, Error analysis of a discontinuous Galerkin method for systems of higher-order differential equations, *Applied Mathematics and Computations*, 219, p. 4503-4525, 2013.

38 Temimi, H. and Adjerid, S., Error analysis of a discontinuous Galerkin method for systems of higher-order differential equations. Appl. Math. Comput. 219, 45034525, 2013.

39 Adjerid, S., and Mechai, I., "A superconvergent DG method for hyperbolic problems on tetrahedral meshes. *Journal of Scientific Computing*, 58 (1), 203248, 2014.

40 Adjerid, S,. Ben Romdhane, M. and Lin, T., High-order interior penalty immersed finite element method for second-order elliptic interface problems, International Journal of Numerical Analysis & Modeling, 11 (3), 541-566, 2014.

41 Adjerid S and Baccouch M., A posteriori local discontinuous Galerkin error estimation for two-dimensional convection-diffusion problems, *Journal of Scientific Computing*, 62 (2015), no. 2, 399430

42 Adjerid, S. and Chaabane, N., An improved superconvergence error estimate for the LDG method, *Applied Numerical Mathematics*, Volume 98, December 2015, Pages 122-136

43 Adjerid, S., Chaabane, N. and Lin, T, An immersed finite element method for Stokes interface problems, 2014, *Computer Methods in Applied Mechanics and Engineering*, Volume 293, 15 August 2015, Pages 170-190

44 Adjerid, S., Guo, R. and Lin, T., High degree immersed finite element spaces by a least-squares method, *International Journal of Numerical Analysis and Modeling*, Volume 14(4-5), 2017, pages 604-626.

45 Adjerid, S., Ben Romdhane, M. and Lin, T., Higher-degree immersed finite element spaces according to the actual interface, *Computers and Mathematics with Applications*, Volume 75, 15 March 2018, pages, 1868-1881.

46 Adjerid, S. and Moon, K., An immersed discontinuous Galerkin method for acoustic wave propagation in inhomogeneous media, SIAM Journal on Scientific Computing, 2018, accepted.

47 Adjerid, S., Chaabane, N., Lin, T., Yue, P., 'An immersed discontinuous finite element method for the Stokes problem with a moving interface, Journal of Computational and Applied Mathematics, In press, Avaliable online 6 August, 2018.

Publications in Conference Proceedings:

48 Adjerid, S. and Flaherty, J. E.[1], "Adaptive finite element methods for parabolic systems in one and two dimensions," Trans. Fourth Army Conf. Appl. Comput., ARO Report 87-1, U.S. Army Research Office, Research Triangle Park, 1987. (refereed)

49 Adjerid, S. and Flaherty, J. E.[1], "First and second-order adaptive finite element methods for parabolic systems," in R. Vichnevetsky and R. S. Stepleman, Eds., Advances in Computer Methods for Partial Differential Equations-VI, IMACS, Rutgers, 1987, 183-198. (refereed)

50 Adjerid, S., Flaherty J.E.[1], Shephard M. S.[4], Wang Y.[3], Hillig W.[5], Hudson J. B.[6], Patibandla N.[7] "Adaptive numerical techniques for reactive vapor infiltration," *Proc. Amer. Ceram. Soc.*, 15 (1994), 924-931. (refereed)

51 Adjerid, S., Flaherty, J. E.[1], Hillig, W. [5], Hudson, J. B.[6], and Shephard, M. S.[4], "Adaptive methods of lines techniques for vapor infiltration problems," *Proc.14th IMACS World Congress on Computation and Applied Mathematics*, W. F. Ames, Ed. 529 (1994). (refereed)

52 Adjerid, S., Beall M. W. [15], Dvorak, G. J. [16], Fish J. [17], Flaherty, J. E. [1], Hudson, J. B. [6], Shek, K.-L. [18], Shephard, M. [4], and Wentorf R. [19], " Mechanism-based design of composite structures," ASME symposium(IMECE), 1996. (refereed)

53 Adjerid, S., Aiffa, M.[8], Flaherty, J. E.[1], Hudson J. B.[6], and Shephard, M. S.[4], "Modeling and adaptive numerical techniques for oxidation of ceramic composites," *Proc. Amer. Ceram. Soc.*, 18 (4) (1997), 315-322. (refereed)

54 Adjerid, S., Flaherty, J. E.[1], Jansen, K.[11], and Shephard, M. S.[4], "Parallel finite element simulations of Czochralski melt flows," Proceedings of ICES (1998), Atlanta. (refereed)

55 Adjerid, S. and Massey T. C.[20], Flexible Galerkin finite element methods, In K. Bathe, editor, Proceedings of the Second MIT Conference on Computational Fluid and Solid Mechanics, (2003) 1848-1850. (refereed)

56 Adjerid, S. and Issaev, D., Superconvergence of the Local Discontinuous Galerkin Method Applied to Diffusion Problems, Proceedings of the Third MIT Conference on Computational Fluid and Solid Mechanics, June 14-17, 2005, Elsevier, editor: J. Bathe, (2005), 1040-1042. (refereed)

57 Adjerid, S. and Moon, K., A Higher Order Immersed Discontinuous Galerkin Finite Element Method for the Acoustic Interface Problem. In Proceedings of Gulf International Conference on Applied Mathematics. Editors: A. Ansari and H. Temimi, Springer, pages 57-68, Springer, 2014. (refereed)

58 Ben Romdhane, M., Adjerid S. and Lin, T., Quadratic immersed finite element spaces for elliptic interface problems, In Proceedings of Gulf International Conference on Applied Mathematics. Editors: A. Ansari and H. Temimi, Springer, pages 171-178, Springer, 2014. (refereed)

Chapter in a Book:

59 Adjerid, S., Aiffa, M.[8], and Flaherty, J. E.[1], "Numerical methods for singularly perturbed problems," in J. Cronin and R. E. O'Malley, Jr. Eds, *Multiscale Phenomena AMS* , Providence (1999).

60 Adjerid, S. and Baccouch, M.[26], (2010), *Galerkin Methods*, A chapter in an online encyclopedia, Scholarpedia, 5(10):10056, Editor Barbara Zubik-Kowal, (By invitation from John Butcher from University of Auckland and William Schiesser from Lehigh University).

61 Adjerid, S. and Baccouch M. [26] , Adaptivity and error estimation for discontinuous Galerkin methods, In X. Feng and O. Karakashian and Y. Xing, Eds, *Recent Developments in Discontinuous Galerkin Finite Element Methods for Partial Differential Equations*, IMA series, Springer, (2013).

Preface:

62 Adjerid S., Moore P. , Teresco J., Preface for the proceedings of ADAPT03: Conference on Adaptive Methods for Partial Differential Equations and Large-Scale Computation, Applied Numerical Mathematics, Elsevier, 52, (2005) 129-130..

Book Reviews:

63 Adjerid S., Review for a book on High-Order Finite Element Methods by Solin, Segeth and Dolezel, SIAM Review, 46, (2004) 747-748.

64 Adjerid S., Review for a book on MATLAB Guide for Finite Elements by Peter Kattan, SIAM Review, 50, (2008) 590.

FORMER AND CURRENT GRADUATE STUDENTS:

Kesri Mohamed	University of Algiers	Mathematics	1990	Master's
Belkacem Belguendouz	University of Algiers	Mathematics	1997	Master's
Qi Yan	Rensselaer Polytechnic	Computer Science	1997	Master's
Mohamed Aiffa	Rensselear Polytechnic	Mathematics	1997	Ph.D.
Christopher Massey	Virginia Tech.	Mathematics	2002	Ph.D.
Andreas Klauser	Virginia Tech.	Mathematics	2002	Master's
Ermira Cami	Virginia Tech.	Mathematics	2003	Master's
Denis Issaev	Virginia Tech	Mathematics		Ph.D.
Thomas Weinhart	Virginia Tech	Mathematics	2009	Ph.D.
Mahboub Baccouch	Virginia Tech	Mathematics	2008	Ph.D.
Helmi Temimi	Virginia Tech	Mathematics	2008	Ph.D.
Mechai Idir	Virginia Tech	Mathematics	2012	Ph.D.
Mohamed Ben Romdhane	Virginia Tech	Mathematics	2011	Ph.D.
Nabil Chaabane	Virginia Tech	Mathematics	2011	M.S.
Nabil Chaabane	Virginia Tech	Mathematics	2015	Ph.D.
Kihyo Moon	Virginia Tech	Mathematics	2016	Ph.D.
Yassine Rais	Virginia Tech	Mathematics	2018	M.S.
Mehdi Bouhafara	Virginia Tech	Mathematics	2018	M.S.
Mehdi Bouhafara	Virginia Tech	Mathematics	2022	Ph.D.
Haroun Meghaichi	Virginia Tech	Mathematics	2023	Ph.D.

[1] Professor, Rensselaer Polytechnic Institute

[2] Associate Professor, Southern Methodist University

[3] Title and location unknown

[4] Professor, Rensselaer Polytechnic Institute

[5] Professor, Rensselaer Polytechnic Institute

[6] Professor, Rensselaer Polytechnic Institute

[7] Research Associate, New York State Energy Research and Development Authority

[8] Assistant Professor, A&M Texas University

[9] Graduate Student, University of Algiers

[10] Professor, University of Texas at Austin

[11] Assistant Professor, Rensselaer Polytechnic Institute

[12] Graduate Student, Rensselaer Polytechnic Institute

[13] Assistant Professor, University of Minnesota

[14] Research Associate, Courant Institute

[15] Research Associate, Rensselaer Polytechnic Institute

[16] Professor, Rensselaer Polytechnic Institute

[17] Associate Professor, Rensselaer Polytechnic Institute

[18] Title and location unknown

[19] Research Associate, Rensselaer Polytechnic Institute

[20] Research Associate, Stennis Space Center

[21] Graduate student, Virginia Tech

[22] Professor, Assyut University, Egypt

[23] Associate Professor, Civil Engineering, Virginia Tech

[24] Graduate Student, Virginia Tech

[25] Assistant Professor, Williams College

[26] Associate professor, University of Nebraska, Omaha

[27] Research Scientist, Twente University, Netherlands