ACADEMIC BIOGRAPHY AND BIBLIOGRAPHY FORM

Summary

Name: Yuri Bazilevs

Title: E. Paul Sorensen Professor of Engineering

Department/School: School of Engineering, Brown University

Research Interests: Computational Mechanics, Engineering and Sciences; Isogeometric Analysis (IGA); Meshfree Methods; Computational Analysis of Solids, Structures, Fluids, and Fluid-Structure Interaction; High-Performance Computing

Contact: email – yuri_bazilevs@brown.edu;

Number of Books: 2 Monographs**, 1** Translation**, 1** Edited

Number of Refereed Archival International Journal Papers: ~195

Statistics in Google Scholar (as of 07/01/2024): Citations ~ **43,400**; h-index = **88**

Section I: Employment History and Education

Employment

Period of employment From: To:	Institution, firm or organization of employment	Location	Rank, title, or position	
07/01/18-Present	School of Engineering, Brown University	Providence, RI	Full Professor E. Paul Sorensen Chair	
07/01/14-07/01/18	Structural Engineering Department, University of California, San Diego	San Diego, CA	Full Professor	
07/01/12-06/30/14	Structural Engineering Department, University of California, San Diego	San Diego, CA	Associate Professor	
07/01/08-06/30/12	Structural Engineering Department, University of California, San Diego	San Diego, CA	Assistant Professor	
09/01/06-08/31/08	Institute for Computational Engineering and Sciences (ICES), University of Texas, Austin	Austin, TX	Postdoctoral Fellow	
09/01/07-08/31/08	Department of Aerospace Engineering and Engineering Mechanics, University of Texas, Austin	Austin, TX	Lecturer	

Education

School, college, university, or hospital (internship, residency, or fellowship)	Dates of attendance	Location	Major subject or field	Degrees or certificates	Date received
University of Texas, Austin	09/02-08/06	Austin, TX	Computational Engineering Sciences	Ph.D.	08/06
Rensselaer Polytechnic Institute	08/96-05/02	Troy, NY	Mechanical Engineering	B.S.; M.S.	12/00; 12/01

Section II: Professional Data

(a) University Service

UC, San Diego

1) ABET Committee Member in the Department of Structural Engineering (01/2010 - 06/2012)
2) Graduate Affairs Committee Member, Department of Structural Engineering (09/2009 – 06/2015)
3) IT Consolidation Committee Member, Jacobs School of Engineering (01/2010 - 06/2011)
4) Energy Technologies Faculty Search Committee Member, Jacobs School of Engineering (09/2011 – 06/2012)
5) Energy Technologies Faculty Search Committee Member, Jacobs School of Engineering (09/2012 – 06/2013)
6) Jacobs Scholars Selection Committee, Jacobs School of Engineering (02/2012 – Present)
7) Founding Member, Diversity Recruitment Committee, Structural Engineering Department (05/2011 – 06/2015)
8) Member, Undergraduate Curriculum Subcommittee on Numerical Methods, Structural Engineering Department (09/2012 – 06/2015)
9) Executive Committee Member, Computational Science Mathematics and Engineering (CSME) Program, Campuswide (05/2011 – 06/2018)
10) Associate Director, Center for Extreme Events Research (CEER), Jacobs School of Engineering (01/01/2014 – 06/2018)
11) **Vice Chair**, Structural Engineering Department (07/2015 – 06/2018)
12) Graduate Affairs Committee Chair, Structural Engineering Department (07/2015 – 06/2018)
13) Executive Committee Member, Warren College (07/2015 – 06/2018)
14) Warren College Alternate Representative to the Representative Assembly of the Academic Senate (9/2015 – 06/2018)
15) Faculty Advisor of the USACM Student Chapter, Structural Engineering Department (9/2015 – 06/2018)

Brown University

1) Fluid and Thermal Sciences (FTS) Faculty Search Committee (09/2018 – 08/2019)
2) Target of Opportunity (ToO) Search Committee (09/2018 – 08/2019)
3) Graduate Representative for Solid Mechanics on the Graduate Studies Committee (01/2019 – 08/2019)
4) Mechanics of Solids and Structures Faculty Search Committee (09/2019 – Present)
5) Chair of Faculty Search for the Nelson Center for Entrepreneurship Endowed Chair (09/2019 – 06/2020)
6) **Lead of the Solids and Structures Group** and Group Representative to the School of Engineering Executive Committee (07/2019 – 08/2022)
7) Brown Engineering Alumni Medal (BEAM) Committee Member (01/2020-Present)
8) **Established an MSc Program in Data-Enabled Computational Engineering and Sciences (DECES)** and Serving as its Academic Director (09/2020 – Present)
9) Mechanics of Solids and Materials Seminar Organizer (09/2019 – 08/2022)
10) Established the **Mechanics of Undersea Science and Engineering (MUSE)** research center (Summer 2023). Serving as MUSE inaugural Director (2023-Present).
11) Chair of a Tenure Committee in the School of Engineering (2023-Present)
12) Inaugural member of the National Lab Day planning committee at the Office of VP for Research (2023-Present)

(b) Honors and Awards

2002 Michael A. Sadowsky Prize for Best MS Thesis in Mechanics, RPI.

2004 Continuing Education Fellowship, UT-Austin.

2006 J.T. Oden ICES Postdoctoral Fellowship, ICES, UT Austin.

2007 Outstanding PhD Dissertation Nominee, UT Austin.

2009 "Most Cited Author in 2005-2008" Award from Computer Methods in Applied Mechanics and Engineering

2010 Hellman Fellow

2010 International Association for Computational Mechanics (IACM) Young Investigator Award

2011 NSF CAREER Award

2011 Gallagher Young Investigator Award from the US Association of Computational Mechanics (USACM)

2012 ASME Applied Mechanics Division Thomas J.R. Hughes Young Investigator Award

2013 Adviser of the UCSD Chancellor's Dissertation Medal in Engineering PhD Thesis of Dr. Ming-Chen Hsu

2014 Warren Lecture, Department of Civil and Environmental Engineering, University of Minnesota

2014 Thomson Reuters Highly Cited Researcher (Computer Science)

2015 Fellow of USACM

2015 Thomson Reuters Highly Cited Researcher (Computer Science)

2015 Thomson Reuters Highly Cited Researcher (Engineering)

2016 Thomson Reuters Highly Cited Researcher (Computer Science)

2016 Thomson Reuters Highly Cited Researcher (Engineering)

2017 Clarivate Analytics Highly Cited Researcher (Computer Science)

2017 Clarivate Analytics Highly Cited Researcher (Engineering)

2018 ASCE Walter E. Huber Research Prize

2018 Clarivate Analytics Highly Cited Researcher (Computer Science)

2018 Clarivate Analytics Highly Cited Researcher (Engineering)

2018 Springer book titled "Frontiers in Computational Fluid-Structure Interaction and Flow Simulation: Research from Lead Investigators under Forty – 2018" dedicated to Y. Bazilevs and K. Takizawa in celebration of their 40th birthday

2019 Fellow of the Engineering Mechanics Institute (EMI) of the ASCE

2019 Clarivate Analytics Highly Cited Researcher (Computer Science)

2019 Annual Speaker of the Danish Center for Applied Mathematics and Mechanics

2019 Highest Cited Paper Award from the Journal of Advanced Engineering and Computation

2020 Lindbergh Lecture, Department of Mechanical Engineering, U of Wisconsin, Madison

2020 Gustus L. Larson Memorial Award from the ASME

2020 Annual Objective Resilience Lecture, Engineering Mechanics Institute of the ASCE

2021 ASME Materials Division Centennial Mid-Career Award

2021 Distinguished Public Lecture, Civil Engineering, University of Hong Kong

2021 Distinguished Lecture, Mechanical and Aerospace Engineering, George Washington U

2022 International Association for Computational Mechanics (IACM) Computational Mechanics Award

2022 Journal of Mechanics Best Paper Award

2024 Elected Fellow of the American Institute for Medical and Biological Engineering (AIMBE)

2024 Distinguished Seminar Lecture, School of Mechanical Engineering, Purdue University

(c) **External Professional Activities**

1) Service:

1. Applied Mechanics Division of ASME Newsletter Editor (2012-2015)
2. Recording Secretary of the Executive Committee of Applied Mechanics Division of ASME (2009-2012)
3. Chairman of the Technical Committee on Computational Fluid-Structure Interaction of the Applied Mechanics Division of ASME (2010-2013)
4. Member of the Technical Committee on Computational Mechanics of ASCE (2009-Present)

5. Scientific Committee Member of HOFEIM 2011, 2014, 2016, 2019, 2023
6. Scientific Committee Member of Coupled Problems 2011, 2013, 2015, 2017, 2019, 2021, 2023
7. Scientific Committee Member of Marine 2013, 2015, 2017, 2019, 2021, 2023
8. Scientific Committee Member of WCCM 2014, 2016, 2018, 2020, 2022, 2024
9. Scientific Committee Member of ComPlas 2021, 2023
10. Scientific Committee Member of IGA 2011, 2014, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023
11. Scientific Committee Member of USNCCM 2015, 2017, 2019, 2021, 2023
12. Scientific Committee Member of EMI 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023
13. Executive Committee of USACM, Member-at-Large, 2014-2016
14. Executive Committee of USACM, Secretary/Treasurer, 2016 – 2018
15. Executive Committee of USACM, Vice President, 2018 – 2020
16. Executive Committee of USACM, President, 2020 – 2022
17. Executive Committee of the Applied Mechanics Division of ASME, Secretary, 2016 - 2017
18. Executive Committee of the Applied Mechanics Division of ASME, Program Vice-Chair, 2017 – 2018
19. Executive Committee of the Applied Mechanics Division of ASME, Program Chair, 2018 – 2019
20. Executive Committee of the Applied Mechanics Division of ASME, Vice-Chair, 2019 – 2020
21. Executive Committee of the Applied Mechanics Division of ASME, Chair, 2020 – 2021
22. US National Committee for Theoretical and Applied Mechanics (USNC/TAM), Member and Chair of the Communications and Future Directions Subcommittee, 2021 – Present
23. USACM Foundation, Member of the Board of Directors, 2023 - Present

2) Editorial Activities:

1. Editor (with T. E. Tezduyar), Special Issue of *Computational Mechanics* titled "Fluid-Structure Interaction", 2008.
2. Editor (with V.M. Calo, C.L. Bajaj, and T.J.R. Hughes), Special Issue of *Computer Methods in Applied Mechanics and Engineering*, "Computational Geometry and Analysis," 2010
3. Editor (with V.M. Calo, C.A. Taylor, and T.J.R. Hughes), Special Issue of *Computer Methods in Applied Mechanics and Engineering*, "Models and Methods in Computational Vascular and Cardiovascular Mechanics," 2009
4. Editor (with V.M. Calo, R.D. Moser, and T.J.R. Hughes), Special Issue of *Computer Methods in Applied Mechanics and Engineering*, "Turbulence Modeling for Large Eddy Simulation" 2010.
5. Editor (with T. E. Tezduyar and A. Masud), Special Issue of *Computational Mechanics* Honoring Prof. T.J.R Hughes on the occasion of his 65th birthday (2010)
6. Editor (with T.E. Tezduyar), Special Issue of the *International Journal of Numerical Methods in Fluids* Honoring Prof. Y. Matsumoto on the occasion of his 60th birthday, 2011
7. Editor (with K. Takizawa and T.E. Tezduyar), Special Issue of *Computational Mechanics* on Computational Fluid Dynamics and Fluid-Structure Interaction, 2011
8. Editor (with T.E. Tezduyar), Special Issue of the *Journal of Applied Mechanics* on Computational Fluid Mechanics and Fluid-Structure Interaction, 2012
9. Member of the **Editorial Board** of *Computational Mechanics* 2012—Present
10. Editor (with T.E. Tezduyar and K. Takizawa), Special Issue of *Mathematical Models and Methods in Applied Sciences* on Computational Fluid-Structure Interaction, 2013
11. Editor (with T.E. Tezduyar and K. Takizawa), 25th Anniversary Special Issue of *Computational Mechanics* on Computational Fluid Mechanics and Fluid-Structure Interaction, 2013
12. Editor (with K. Takizawa and T.E. Tezduyar), *Biomedical Fluid Mechanics and Fluid-Structure Interaction, Computational Mechanics*, Vol. 54, No. 4, Springer (2014).

13. Editor (with T.E. Tezduyar and K. Takizawa), Special Issue of *Mathematical Models and Methods in Applied Sciences* on Fluid Dynamics Modeling with Stabilized and Multiscale Methods, 2015
14. Editor (with K. Takizawa), Special Issue of *Computers & Fluids* on Advances in Computational Fluid-Structure and Flow Simulation, 2016
15. Editor (with K. Takizawa, C.-A. Lin, and H. van Brummelen), Special Issue of *Computers & Fluids* on Finite Elements in Flow Problems, 2016
16. Editor (with K. Takizawa, C.-A. Lin, and H. van Brummelen), Special Issue of *Computers and Mathematics with Applications* on Finite Elements in Flow Problems, 2016
17. Editor (with A. Tejada-Martinez), Special Issue of *Computers & Fluids* on Multiscale Methods in Turbulence and Geophysical Flows, 2016
18. **Associate Editor** of *Computers and Fluids* 2014-Present
19. Member of the **Editorial Board** of *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization* 2014-Present
20. **Associate Editor** of *Mathematical Methods and Models in Applied Sciences* 2016-Present
21. Member of the **Advisory Board** of *Modeling and Simulation in Science, Engineering and Technology* series, Birkhauser*, 2016-Present
22. Member of the **Editorial Board** of *Archives of Computational Methods in Engineering* 2018-Present
23. Editor (with T.E. Tezduyar and K. Takizawa), Special Issue of *Mathematical Models and Methods in Applied Sciences* on Methods for Unsteady Complex Flow Problems, 2019
24. Member of the **Advisory Board** of *Forces in Mechanics*, an Elsevier Journal, 2020-Present
25. Member of the **Editorial Board** of *Engineering with Computers*, a Springer Journal, 2021-Present
26. Member of the **Editorial Board** of *Computer Methods in Applied Mechanics and Engineering*, an Elsevier Journal, 2021-Present
27. Member of the **Editorial Board** of *International Journal of Solids and Structures*, an Elsevier Journal, 2021-Present
28. Editor (with T.E. Tezduyar and K. Takizawa), Special Issue of *Mathematical Models and Methods in Applied Sciences* on Isogeometric Discretization Methods in Computational Fluid Mechanics, 2022
29. Editor (with M.-C. Hsu, E. Johnson, and T.J.R. Hughes), Special Issue of the *Journal of Mechanics* on Recent Advances in Isogeometric Methods, 2022

3) Conferences Organized:

1. Co-organizer of a *Joint UCSD-Bauhaus University Weimar Workshop* on the "Simulation of Extreme Events", Weimar, Germany, October 8-9, 2009
2. Principal Organizer of a *4th Joint UCSD-Bauhaus University, Weimar Technology and Society Workshop*: "Latest Trends and Developments in Computational Technology and Methods for Solids, Structures, Fluids and Fluid-Structure Interaction", San Diego, CA, September 26-28, 2010 (**40+** participants).
3. Co-organizer of the **First USACM Thematic Conference** *Isogeometric Analysis: Integrating Design and Analysis (IGA 2011),* Austin, TX, January 13-15, 2011 (**100+** participants).
4. Principal Organizer of Advances in Computational Mechanics (ACM) 2013 – A Conference Celebrating the 70th Birthday of Thomas J.R. Hughes, San Diego, CA, February 24-27, 2013. **400+ attendees**.
5. Co-organizer of IGA 2014: Isogeometric Methods – Integrating Design and Analysis, a USACM/ICES thematic conference Austin, TX, January 8-10, 2014. **100+ attendees**.
6. Co-organizer of Advances in Computational Fluid Mechanics and Fluid-Structure Interaction (AFSI) 2014 – A Conference Celebrating the 60th Birthday of Tayfun Tezduyar, Tokyo, Japan, March 19-21, 2014. **100+ attendees**.

7. Principal Organizer of the US National Congress on Computational Mechanics (USNCCM), July 26-30, 2015, San Diego, CA. **1,300 attendees**.
8. Principal Organizer of a USACM Thematic Conference on Isogeometric and Meshfree Methods, IGA-Meshfree 2016, October 10-12, La Jolla, CA. **200 attendees**.
9. Principal Organizer of EMI 2017 – Engineering Mechanics Institute of ASCE Annual Conference, June 4-7, 2017, San Diego, CA. **750 attendees**.
10. Principal Organizer of Advances in Computational Fluid Mechanics and Fluid-Structure Interaction (AFSI) 2018 – A Conference Dedicated to the 75th Birthday of Tom Hughes, Banff, Canada, May 2-4, 2018. **25 attendees**.
11. Co-organizer and steering committee member of IGA 2018: Isogeometric Methods – Integrating Design and Analysis, a USACM/ICES thematic conference Austin, TX, October 10-12, 2018. **150+ attendees**.
12. Chair of Solids, Structures, and Fluids Track of 2018 ASME IMECE. Responsible for the technical program that included nearly **500 abstracts**.
13. Principal Organizer of Advances in Computational Mechanics (ACM) 2023 – A Conference Celebrating the 80th Birthday of Thomas J.R. Hughes, Austin, TX, October 22-25, 2023. **300 attendees**.

4) Industry Impact

1. Co-developed a linear algebra solver licensed by HeartFlow Inc., a company that creates patient-specific models of coronary arteries and analyzes the impact of blockages on blood flow and onset of atherosclerosis.
2. Developed FSI analysis methods and software employed to analyze complex golf club designs for Cobra Puma Golf.
3. Developed FSI analysis methods and software employed for foil-based propulsion system designs for recreational water sports for Hobie Cat Inc.
4. Developed FSI analysis methods and software employed to analyze the impact of vortex mitigation devices for long-span bridge designs for the Norwegian Public Roads Administration.
5. Developed FSI analysis methods and software employed to analyze the inner-workings of the military aircraft hydraulic arresting systems for NAVAIR.
6. Developed immersogeometric FSI analysis methods and software employed to analyze the inner-workings of the autoclave process for curing composite parts for TDA Inc.
7. Developed immersogeometric FSI analysis methods and software employed to analyze aerospace structures with emphasis on UH60 Blackhawk Rotorcraft for TDA Inc.
8. Developed methods to support volumetric mesh generation for Isogeometric Analysis.

(d) **Most Significant Contributions to Promoting Diversity**

1) Academic Internship Advisor of Mr. Carlos Auyon, an undergraduate student of Mexican-American descent. (05/2011 – 06/2013)
2) Founding Member of the SE Department Diversity Recruitment Committee (05/2011 – 06/2015) – committee focusing on identifying and recruiting faculty candidates that are likely to significantly contribute to diversity at UCSD.
3) Member, then Chair of the Graduate Affairs Committee in the SE Department, participating in the selection of minority graduate students to receive graduate fellowships (09/2009 – Present)
4) Member of the Jacobs Scholars Selection Committee (02/2012 – Present) – committee focusing on selecting a small number of applicants for undergraduate study to receive the prestigious Jacobs scholarships in the School of Engineering. Contribution to diversity is one of the criteria on which the selection was based, requiring the committee judgment.
5) Faculty Advisor of the USACM Student Chapter (09/2015 – Present). One of the Chapter activities is outreach to local schools with significant underrepresented minority population in an effort to teach the students about the benefit of STEM education.
6) As the organizer of the US National Congress in Computational Mechanics (USNCCM), the main conference of the USACM (1,300+ participants): a. Enabled two Semi-Plenary Lectures given by mid-career female researchers; b. Organized and procured outside sponsorship for a networking

event for Women in Computational Mechanics, a first such event at the USNCCM. This event later catalyzed the formation of the USACM Female Researchers Group. 07/2015.

7) Member of the Excellence Search Committee in SE that resulted in a successful hire of a female faculty member Prof. Veronica Eliasson. (09/2015 – 06/2016)
8) Member of the Target of Opportunity (ToO) Search Committee at Brown University focusing on the recruitment of Diverse faculty to the School of Engineering (2018-2019)

(e) Student Instructional Activities

Course # and Title	Quarter	#Enrolled	%Recommend Instructor
UC, San Diego			
SE87 "Role of Simulation in Engineering"	WI'09	12	100 %
SE207 (now SE278B) "Computational Fluid-Structure Interaction"	WI'09	4	100 %
SE130B "Structural Analysis II"	SP'09	76	100 %
SE276A "Finite Elements in Solid Mechanics I"	FA'09	63	97.3 %
SE278A "Computational Fluid Dynamics"	WI'10	12	100 %
SE130B "Structural Analysis II"	SP'10	139	90 %
SE276A "Finite Elements in Solid Mechanics I"	FA'10	46	100 %
SE278B "Fluid-Structure Interaction"	WI'11	14	100%
SE87 "Role of Simulation in Engineering"	WI'11	9	100%
SE130B "Structural Analysis II"	SP'11	131	75%
SE207 "Design and Analysis of Ocean Structures"	SP'11	7	N/A
SE276A/MAE232A "Finite Elements in Solid Mechanics I"	FA'11	42	100 %
SE278A "Finite Elements for Fluid Mechanics"	WI'12	12	100 %
SE130B "Structural Analysis II"	SP'12	122	81 %
SE276A/MAE232A "Finite Elements in Solid Mechanics I"	FA'12	54	98 %
SE278B "Computational Fluid-Structure Interaction"	WI'13	10	89%
SE290 "Structural Engineering Seminar"	SP'13	58	N/A
SE207 "Continuum Mechanics for Simulation-Based Engineering"	SP'13	6	100%
SE290 "Structural Engineering Seminar"	FA'13	60	N/A
SE276A/MAE232A "Finite Elements in Solid Mechanics I"	FA'13	57	100 %
SE290 "Structural Engineering Seminar"	SP'14	54	N/A
SE101C/MAE130C "Structural Vibrations"	SP'14	130	91%
SE276A/MAE232A "Finite Elements in Solid Mechanics I"	FA'14	52	98 %
SE200 "Applied Mathematics for Structural Engineering"	WI'15	60	92.3 %
SE278A "Finite Elements for Fluid Mechanics"	SP'15	17	100 %
SE276A/MAE232A "Finite Elements in Solid Mechanics I"	FA'15	64	92 %
SE101B/MAE130B "Structural Dynamics"	WI'16	132	85 %
SE278A "Finite Elements for Fluid Mechanics"	FA'16	15	93%
SE278B "Computational Fluid-Structure Interaction"	WI'17	8	100%
SE276A/MAE232A "Finite Elements in Solid Mechanics I"	FA'17	60	93 %
SE207 "Isogeometric Analysis"	SP'18	9	100%

Brown University

Course # and Title	Semester	#Enrolled	Instructor Rating (**1-best**; 5-worst)
ENGN2912N "Isogeometric Methods in Computational Mechanics"	FA'18	2	1.00
ENGN1300 "Structural Analysis"	SP'19	9	1.50

Course # and Title	Semester	#Enrolled	Instructor Rating (**5-best**; 1-worst)
ENGN2340 "Computational Methods in Structural Mechanics"	FA'19	5	4.75
ENGN1300 "Structural Analysis"	SP'20	17	4.50
ENGN2340 "Computational Methods in Structural Mechanics"	FA'20	3	5.00

ENGN1300	"Structural Analysis"	SP'21	16	4.18
ENGN2911V	"Advanced Topics in Computational Mechanics: Isogeometric Analysis, Meshfree Methods, and FSI"	FA'21	5	5.00
ENGN0040	"Dynamics and Vibrations"	SP'22	130	4.33
ENGN2340	"Computational Methods in Structural Mechanics"	FA'22	15	4.15
ENGN1300	"Structural Analysis"	SP'23	18	4.44
ENGN2340	"Computational Methods in Structural Mechanics"	FA'23	6	5.00
ENGN0040	"Dynamics and Vibrations"	SP'24	180	4.22

UC, San Diego

Masters Students:
Joseph Dunaway/research adviser, MS 2011
John Kvandal/research adviser, MS 2011
Justin Spinks/research adviser, MS 2011
Kenneth Benner/research adviser, MS 2013
Viet Ho/research adviser, MS 2012
Varun Bhatt/research adviser, MS 2017

Doctoral Students:
Ming-Chen Hsu/thesis adviser, PhD 2012
Christopher Long/thesis adviser, PhD 2013
Artem Korobenko/thesis adviser, PhD 2014
Jinhui Yan/thesis adviser, PhD 2016
George Moutsanidis/thesis adviser, PhD 2018
Marco Pigazzini/thesis adviser, PhD 2018

Stuart Taylor/ PhD committee member (Mike Todd thesis adviser)
Daniel Whisler/ PhD committee member (Hyonny Kim thesis adviser)
Li Ge/PhD committee member (Falko Kuester thesis adviser)
Jeff Tippman/PhD committee member (Francesco Lanza thesis adviser)
Sara Pollock/PhD committee member (Michael Holst thesis adviser)
Mahdi Esmaily Moghadam/ PhD committee member (Alison Marsden thesis adviser)
David Barajas/ PhD committee member (Daniel Tartakovsky thesis adviser)
Gwynn Elfring/ PhD committee member (Eric Lauga thesis adviser)
Yichao Xu/ PhD committee member (Vitali Nesterenko thesis adviser)
Weiguang Yang/ PhD committee member (Alison Marsden thesis adviser)
Chien-Wei Lee/ PhD committee member (Vitali Nesterenko thesis adviser)
Yantao Zhang/ PhD committee member (JS Chen thesis adviser)
Haoyan Wei/ PhD committee member (JS Chen thesis adviser)
Ramya Basava/ PhD committee member (JS Chen thesis adviser)
Edouard Ereux/ PhD committee member (JS Chen thesis adviser)
Guohua Zhou/ PhD committee member (JS Chen thesis adviser)
Rauno Cavallaro/PhD committee member (D.J. Benson thesis adviser)
Poorya Mirkhosravi/PhD committee member (P. Krysl thesis adviser)
Wiroj Nantasetphong/PhD committee member (S. Nemat-Nasser thesis adviser)
Scott Oulette/PhD Committee member (M.D. Todd thesis adviser)
Konstantinos Anagnostopoulos/PhD Committee member (H. Kim thesis adviser)
Pedro Navarro/PhD committee member (V. Nesterenko thesis adviser)
Iman Gohari/PhD Committee member (S. Sarkar thesis adviser)
Qizhi He/PhD committee member (J.S. Chen thesis adviser)
Eric Kjolsing/PhD committee member (M.D. Todd thesis adviser)
Marios Mavros/PhD committee member (B. Shing thesis adviser)
John Moody/PhD committee member (M. Holst thesis adviser)
Daniel Nelson/PhD committee member (S. Sarkar thesis adviser)
Anikesh Pal/PhD committee member (S. Sarkar thesis adviser)
Mattew de Stadler/PhD committee member (S. Sarkar thesis adviser)
Vasileios Papadopoulos/PhD committee member (B. Shing thesis adviser)

Postdocs:

Dr. Ido Akkerman/research adviser (2009 – 2012)
Dr. Xiaowei Deng/research adviser (2012 – 2016)
Dr. Kazem Kamran/research adviser (2014 – 2016)
Dr. Benoit Augier/research adviser (2013 – 2014)
Dr. Artem Korobenko/research adviser (2015 – 2016)
Dr. David Kamensky/research adviser (2016 – 2018)

Brown University

Masters Students:

Doctoral Students:
Mert D. Alaydin/research adviser, PhD 2022
Weican Li/research adviser, PhD 2024
Shaunak Shende/research adviser, PhD expected 2025
Ke Ma/research adviser, PhD expected 2026
Jiahao Liu/research adviser, PhD expected 2028

UG Students:
Shaunak Shende/honors thesis adviser, BS Spring 2019

Postdocs:
Dr. David Kamensky/research adviser (2018 – 2019)
Dr. Georgios Moutsanidis/research adviser (2018 – 2019)
Dr. Michael Wu/research adviser (2019 – 2020)
Dr. Masoud Behzadinasab/research adviser (2020 – 2022)
Dr. Robert Hunt/research adviser (2021 – Present, co-advised with Prof. Dan Harris)
Dr. Jiarui Wang/research adviser (2022 – Present)
Dr. Hoang Nguyen/research adviser (2022 – Present)
Dr. Weican Li/reserch adviser (2024 – Present)

Other Institutions

John Evans (PhD committee member at The University of Texas, Austin), PhD 2012
Peter Stein (PhD committee member at Bauhaus University, Weimar, Germany), PhD 2012
Peter Nortoft (PhD committee member at DTU, Denmark), PhD 2012
Hassan Al Akrhas (PhD committee member at INSA, Lyon, France), PhD 2016
Christopher Coley (PhD committee member at UC, Boulder), PhD 2017
Jesus Bueno (PhD committee member at University of A Coruna, Spain), PhD 2017
Tore Andreas Helgedagsrud (PhD committee member at NTNU, Norway), PhD 2019
Marco ten Eikelder (PhD committee at Delft University of Technology, The Netherlands), PhD 2020

Visiting Scholars Supervised

Dr. Josef Kiendl (TU Munich, Germany)
Dr. Francesco Pesavento (University of Padova, Italy)
Mr. Michael Breitenberger (TU Munich, Germany)
Mr. Peter Stein (Bauhaus University, Weimar, Germany)
Dr. Robert Schmidt (TU Munich, Germany)
Ms. Siv-Bente Raknes (NTNU, Norway)
Dr. Michele Conti (U of Pavia, Italy)
Dr. Martin Ruess (TU Delft, The Netherlands)
Dr. Kris vad der Zee (TU Eindhoven, The Netherlands)
Dr. Hiroshi Hasebe (Nhon University, Japan)
Dr. Benoit Augier (Bretagne Occidentale, France)
Dr. Timo van Opstal (NTNU, Norway)
Mr. Jesus Bueno (University of A Coruna, Spain)
Mr. Navid Valizadeh (Bauhaus University Weimar, Germany)

Mr. Giwon Hong (University of Tokyo, Japan)
Mr. Dennis van Iersel (TU Eindhoven, The Netherlands)
Ms. Anke Boschmann (TU Eindhoven, The Netherlands)
Ms. Jun Leng (SJTU, China)
Mr. Marco ten Eikelder (Delft U, The Netherlands)
Mr. David Codoni (U Calgary, Canada)

Section III - Bibliography

I. Peer-reviewed journal articles

1. T.J.R. Hughes, J.A. Cottrell, and Y. Bazilevs, "Isogeometric analysis: CAD, finite elements, NURBS, exact geometry and mesh refinement", *Computer Methods in Applied Mechanics and Engineering*, 194 (2005) 4135-4195.
2. J.A. Cottrell, A. Reali, Y. Bazilevs, and T.J.R. Hughes, "Isogeometric analysis of structural vibrations", *Computer Methods in Applied Mechanics and Engineering,* 195 (2006) 5257-5296.
3. Y. Bazilevs, L. Beirao da Veiga, J.A. Cottrell, T.J.R. Hughes, and G. Sangalli, "Isogeometric analysis: Approximation, stability and error estimates for *h*-refined meshes", *Mathematical Methods and Models in Applied Sciences*, 16 (2006) 1031-1090.
4. Y. Bazilevs, V.M. Calo, Y. Zhang, and T.J.R. Hughes, "Isogeometric fluid-structure interaction analysis with applications to arterial blood flow", *Computational Mechanics*, 38 (2006) 310-322.
5. Y. Bazilevs and T.J.R. Hughes, "Weak imposition of Dirichlet boundary conditions in fluid mechanics", *Computers and Fluids*, 36 (2007) 12-26.
6. Y. Zhang, Y. Bazilevs, S. Goswami, C. Bajaj, and T.J.R. Hughes, "Patient-specific vascular NURBS modeling for isogeometric analysis of blood flow", *Computer Methods in Applied Mechanics and Engineering,* 196 (2007) 2943-2959.
7. Y. Bazilevs, V.M. Calo, T.E. Tezduyar, and T.J.R. Hughes, "YZbeta discontinuity-capturing for advection-dominated processes in arterial drug delivery", *International Journal for Numerical Methods in Fluids*, 54 (2007) 593-608.
8. Y. Bazilevs, C. Michler, V.M. Calo, and T.J.R. Hughes, "Weak Dirichlet boundary conditions for wall-bounded turbulent flows", *Computer Methods in Applied Mechanics and Engineering,* 196 (2007) 4853-4862.
9. Y. Bazilevs, V.M. Calo, J.A. Cottrell, T.J.R. Hughes, A. Reali, and G. Scovazzi, "Variational multiscale residual-based turbulence modeling for large eddy simulation of incompressible flows", *Computer Methods in Applied Mechanics and Engineering*, 197 (2007) 173-201.
10. I. Akkerman, Y. Bazilevs, V.M. Calo, T.J.R. Hughes and S. Hulshoff, "The role of continuity in residual-based variational multiscale modeling of turbulence", *Computational Mechanics*, 41 (2008) 371-378.
11. T. Elguedj, Y. Bazilevs, V.M. Calo, and T.J.R. Hughes, "B-bar and F-bar projection methods for nearly incompressible linear and nonlinear elasticity and plasticity using higher-order NURBS elements", *Computer Methods in Applied Mechanics and Engineering*, 197 (2008) 2732-2762.
12. T. Elguedj, Y. Bazilevs, V.M. Calo, and T.J.R. Hughes, "F-bar projection method for finite-deformation elasticity and plasticity using NURBS-based isogeometric analysis", *International Journal of Material Forming*, 1 (2008) 1091-1094.
13. H. Gomez, V.M. Calo, Y. Bazilevs, and T.J.R. Hughes, "Isogeometric Analysis of the Cahn-Hilliard phase field model", *Computer Methods in Applied Mechanics and Engineering*, 197 (2008) 4333-4352.
14. Y. Bazilevs, V.M. Calo, T.J.R. Hughes, and Y. Zhang, "Isogeometric fluid-structure interaction: Theory, algorithms and computations," *Computational Mechanics.* 43 (2008) 3-37.
15. V.M. Calo, N. Brasher, Y. Bazilevs, and T.J.R. Hughes, "Multiphysics model for blood flow and drug transport with application to patient-specific coronary artery flow," *Computational Mechanics,* 43 (2008) 161-177.
16. Y. Bazilevs and T.J.R. Hughes, "NURBS-based Isogeometric Analysis for the computation of flows about rotating components," *Computational Mechanics,* 43 (2008) 143-150.
17. Y. Bazilevs, C. Michler, V.M. Calo, and T.J.R. Hughes, "Isogeometric variational multiscale modeling of wall-bounded turbulent flows with weakly-enforced boundary conditions on unstretched meshes", *Computer Methods in Applied Mechanics and Engineering,* 199 (2010) 780-790*.*
18. J. Isaksen, Y. Bazilevs, T. Kvamsdal, Y. Zhang, J.H. Kaspersen, K. Waterloo, B. Romner, and T. Ingebrigtsen, "Determination of wall tension in cerebral artery aneurysms by numerical simulation", *Stroke*, 39 (2008) 3172-3178.

19. J.A. Evans, Y. Bazilevs, I. Babuska, and T.J.R. Hughes, "N-widths, sup-infs, and optimality ratios for the k-version of the isogeometric finite element method", *Computer Methods in Applied Mechanics and Engineering,* 198 (2009) 1726-1741.

20. M.-C. Hsu, Y. Bazilevs, V.M. Calo, T.E. Tezduyar, and T.J.R. Hughes, "Improving stability of stabilized and multiscale formulations in flow simulations at small time steps", *Computer Methods in Applied Mechanics and Engineering,* 199 (2010) 828-840.

21. Y. Bazilevs, J.R. Gohean, T.J.R. Hughes, R.D. Moser, and Y. Zhang, "Patient-specific isogeometric fluid-structure interaction analysis of thoracic aortic blood flow due to implantation of the Jarvik 2000 left ventricular assist device", *Computer Methods in Applied Mechanics and Engineering,* 198 (2009) 3534-3550.

22. Y. Bazilevs, V.M. Calo, J.A. Cottrell, J. Evans, T.J.R. Hughes, S. Lipton, M.A. Scott, and T.W. Sederberg, "Isogeometric Analysis using T-Splines," *Computer Methods in Applied Mechanics and Engineering,* 199 (2010) 229-263.

23. S. Lipton, J. Evans, Y. Bazilevs, T. Elguedj, and T.J.R. Hughes, "Robustess of isogeometric structural discretizations under severe mesh distortion," *Computer Methods in Applied Mechanics and Engineering,* 199 (2010) 357-373.

24. D. Benson, Y. Bazilevs, M.-C. Hsu, and T.J.R. Hughes, "Isogeometric Shell Analysis: The Reissner-Mindlin Shell," *Computer Methods in Applied Mechanics and Engineering,* 199 (2010) 276-289.

25. Y. Zhang, W. Wang, X. Liang, Y. Bazilevs, M.-C. Hsu, T. Kvamsdal, R. Brekken, and J. Isaksen, "High-Fidelity Tetrahedral Mesh Generation from Medical Imaging Data for Fluid-Structure Interaction Analysis of Cerebral Aneurysms," *Computer Modeling in Engineering and Sciences*, 42 (2009) 131-148.

26. Y. Bazilevs, M.-C. Hsu, D. Benson, S. Sankaran, and A. Marsden, "Computational Fluid-Structure Interaction: Methods and Application to a Total Cavopulmonary Connection," *Computational Mechanics* 45 (2009) 77-89.

27. Y. Bazilevs, M.-C. Hsu, Y. Zhang, W. Wang, X. Liang, T. Kvamsdal, R. Brekken, and J. Isaksen. "A Fully-Coupled Fluid-Structure Interaction Simulation of Cerebral Aneurysms", *Computational Mechanics* 46 (2010) 3-16.

28. D.J. Benson, Y. Bazilevs, E. De Luycker, M.C. Hsu, M. Scott, T.J.R. Hughes, and T. Belytschko, "A generalized finite element formulation for arbitrary basis functions: From isogeometric analysis to XFEM", *International Journal for Numerical Methods in Engineering* 83 (2010) 765-785.

29. Y. Bazilevs and I. Akkerman, "Large Eddy Simulation of Turbulent Taylor-Couette Flow Using Isogeometric Analysis and the Residual-Based Variational Multiscale Method", *Journal of Computational Physics,* 229 (2010) 3402-3414.

30. Y. Bazilevs, M.-C. Hsu, Y. Zhang, W. Wang, T. Kvamsdal, S. Hentschel, and J. Isaksen. "Computational vascular fluid-structure interaction: methodology and application to cerebral aneurysms," *Biomechanics and Modeling in Mechanobiology,* 9 (2010) 481-498.

31. J. Kiendl, Y. Bazilevs, M.-C. Hsu, R. Wuechner, and K.-U. Bletzinger. "The Bending Strip Method for Isogeometric Analysis of Kirchhoff-Love Shell Structures Comprised of Multiple Patches". *Computer Methods in Applied Mechanics and Engineering,* 199 (2010) 2403-2416.

32. C.E. Kees, I. Akkerman, M.W. Farthing, and Y. Bazilevs. "A Conservative Level Set Method Suitable for Variable-Order Approximations and Unstructured Meshes," *Journal of Computational Physics,* 230 (2011) 4536-4558.

33. D.J. Benson, Y. Bazilevs, M.-C. Hsu and T.J.R. Hughes, "A Large-Deformation, Rotation-Free Isogeometric Shell", *Computer Methods in Applied Mechanics and Engineering,* 200 (2011) 1367-1378.

34. I. Akkerman, Y. Bazilevs, C.E. Kees, M.W. Farthing, "Isogeometric Analysis of Free-Surface Flow", *Journal of Computational Physics*, 230 (2011) 4137-4152

35. Y. Bazilevs, M.-C. Hsu, I. Akkerman, S. Wright, K. Takizawa, B. Henicke, T. Spielman, and T.E. Tezduyar, "3D Simulation of Wind Turbine Rotors at Full Scale. Part I: Geometry Modeling and Aerodynamics", *International Journal of Numerical Methods in Fluids*, 65 (2011) 207-235.

36. Y. Bazilevs, M.-C. Hsu, J. Kiendl, R. Wuechner and K.-U. Bletzinger, "3D Simulation of Wind Turbine Rotors at Full Scale. Part II: Fluid-Structure Interaction", *International Journal of Numerical Methods in Fluids*, 65 (2011) 236-253.

37. Y. Bazilevs, J.C. del Alamo, J.D. Humphrey, "From imaging to prediction: Emerging non-invasive methods in pediatric cardiology", *Progress in Pediatric Cardiology*, 30 (2010) 81-89. **Review article**.

38. M.-C. Hsu, I. Akkerman, and Y. Bazilevs, "High-performance computing of wind turbine aerodynamics using isogeometric analysis," *Computers and Fluids* 49 (2011) 93-100.

39. M.-C. Hsu and Y. Bazilevs, "Blood vessel tissue prestress modeling for vascular fluid-structure interaction simulations," *Finite Elements in Analysis and Design* 47 (2011) 593-599.

40. E. De Luycker, D.J. Benson, T. Belytschko, Y. Bazilevs and M.-C. Hsu, "XFEM in Isogeometric Analysis for Linear Fracture Mechanics", *International Journal for Numerical Methods in Engineering*, 87 (2011) 541–565.

41. Y. Bazilevs, M.-C. Hsu, J. Kiendl, and D.J. Benson, "A Computational Procedure for Pre-Bending of Wind Turbine Blades", *International Journal for Numerical Methods in Engineering*, 89 (2012) 323—336.

42. K. Takizawa, B. Henicke, T.E. Tezduyar, M.-C. Hsu, and Y. Bazilevs, "Stabilized Space-Time Computation of Wind-Turbine Rotor Aerodynamics", *Computational Mechanics*, 48 (2011) 333-344.

43. K. Takizawa, B. Henicke, D. Montes, T.E. Tezduyar, M.-C. Hsu, Y. Bazilevs, "Numerical-Performance Studies for the Stabilized Space-Time Computation of Wind-Turbine Rotor Aerodynamics", *Computational Mechanics*, 48 (2011) 647-657.

44. M. E. Moghadam, Y. Bazilevs, T.-Y. Hsia, I. Vignon-Clementel, A. L. Marsden, and MOCHA, "A comparison of outlet boundary treatments for prevention of backflow divergence with relevance to blood flow simulations", *Computational Mechanics*, 48 (2011) 277-291.

45. Y. Bazilevs, "Addressing Wind Energy Challenges Through Advanced Simulation", *IACM Expressions*, 29 (2011) 13-18. **Cover Article.** (6 pg)

46. N. Nguyen-Thanh, J. Kiendl, H. Nguyen-Xuan, K.-U. Bletzinger, Y. Bazilevs, and T. Rabczuk, "Rotation free isogeometric shell analysis using PHT-splines for thin shells", *Computer Methods in Applied Mechanics and Engineering*, 200 (2011) 3410-3424.

47. A.E. Tejada-Martinez, I. Akkerman, and Y. Bazilevs, "Large-eddy simulation of shallow water Langmuir turbulence using isogeometric analysis and the residual-based variational multiscale method," *Journal of Applied Mechanics* 79, 010909 (2012).

48. I. Akkerman, Y. Bazilevs, D.J. Benson, M.F. Farthing, and C.E. Kees, "Free-Surface Flow and Fluid-Object Interaction Modeling with Emphasis on Ship Hydrodynamics", *Journal of Applied Mechanics*, 79, 010905 (2012).

49. S. Hossain, S.F.A. Hossainy, Y. Bazilevs, V.M. Calo, and T.J.R. Hughes, "Mathematical modeling of coupled drug and drug-encapsulated nanoparticle transport in patient-specific coronary artery walls," *Computational Mechanics,* 49 (2012) 213—242.

50. D. Schillinger, M. Ruess, N. Zander, Y. Bazilevs, A. Düster, E. Rank, "Large deformation analysis with the p- and B-spline versions of the Finite Cell Method. Part II: Unfitted Dirichlet boundary conditions, severe mesh distortion and application to complex voxel-based geometries", *Computational Mechanics,* 50 (2012) 445--478.

51. P. Stein, M.-C. Hsu, Y. Bazilevs and K. Beucke, "Operator- and Template-Based Modeling of Solid Geometry for Isogeometric Analysis with Application to Vertical Axis Wind Turbine Simulation", *Computer Methods in Applied Mechanics and Engineering*, 213-216 (2012) 71—83.

52. C.C. Long, M.-C. Hsu, Y. Bazilevs, J. Feinstein, and A. Marsden, "Fluid Structure Interaction Simulations of the Fontan Procedure using Variable Wall Properties", *International Journal for Numerical Methods in Biomedical Engineering*, 28 (2012) 512-527.

53. K. Takizawa, Y. Bazilevs, and T.E. Tezduyar, "Space--Time and ALE-VMS Techniques for Patient-Specific Cardiovascular Fluid--Structure Interaction Modeling", *Archives of Computational Methods in Engineering*, 19 (2012) 171--225. Review Article.

54. M.-C. Hsu, I. Akkerman, and Y. Bazilevs, "Wind turbine aerodynamics using ALE--VMS: Validation and the role of weakly enforced boundary conditions", *Computational Mechanics,* 50 (2012) 499-511.

55. Y. Bazilevs, M.-C. Hsu, and M.A. Scott, "Isogeometric Fluid--Structure Interaction Analysis with Emphasis on Non-Matching Discretizations, and with Application to Wind Turbines", *Computer Methods in Applied Mechanics and Engineering*, 249-252 (2012) 28-41.

56. Y. Bazilevs, M.-C. Hsu, K. Takizawa, and T.E. Tezduyar, "ALE-VMS and ST-VMS Methods for Computer Modeling of Wind-Turbine Rotor Aerodynamics and Fluid—Structure Interaction", *Mathematical Models and Methods in Applied Sciences* 22 (2012) 1230002. Review article.

57. M.-C. Hsu, I. Akkerman, Y. Bazilevs, "Finite element simulation of wind turbine aerodynamics: Validation study using NREL Phase VI experiment", *Wind Energy* 17 (2014) 461-481. DOI: 10.1002/we.1599.

58. Y. Bazilevs, A.L. Marsden, F. Lanza di Scalea, A. Majumdar, and M. Tatineni, "Toward a computational steering framework for large-scale composite structures based on continually and dynamically injected sensor data", *Procedia Computer Science*, 9 (2012) 1149--1158.

59. Y. Bazilevs, I. Akkerman, D.J. Benson, G. Scovazzi, and M.J. Shashkov, "Isogeometric Analysis of Lagrangian Hydrodynamics". Journal of Computational Physics, 243 (2013) 224-243.

60. I. Akkerman, J. Dunaway, J. Kvandal, J. Spinks, and Y. Bazilevs, "Toward free-surface modeling of planing hulls: Simulation of the Fridsma hull using ALE-VMS". *Computational Mechanics*, 50 (2012) 719-727.

61. M.-C. Hsu and Y. Bazilevs, "Fluid--structure interaction modeling of wind turbines: Simulating the full machine". *Computational Mechanics*, 50 (2012) 821-833.

62. A. Korobenko, M.-C. Hsu, I. Akkerman, J. Tippmann, Y. Bazilevs, "Structural mechanics modeling and FSI simulation of wind turbines", *Mathematical Models and Methods in Applied Sciences*, 23 (2013) 249-272.

63. D.J. Benson, S. Hartmann, Y. Bazilevs, M.-C. Hsu, T.J.R. Hughes, "Blended isogeometric shells", *Computer Methods in Applied Mechanics and Engineering*, 255 (2013) 133-146.

64. Y. Bazilevs, K. Takizawa, and T.E. Tezduyar, "Challenges and directions in computational fluid--structure interaction", Mathematical Models and Methods in Applied Sciences, 23 (2013) 215-221.

65. M. Ruess, D. Schillinger, Y. Bazilevs, V. Varduhn, and E. Rank, "Weakly enforced essential boundary conditions for NURBS-embedded and trimmed NURBS geometries on the basis of the finite cell method", *International Journal for Numerical Methods in Engineering*, 95 (2013) 811–846.

66. C.C. Long, A.L. Marsden, and Y. Bazilevs, "Fluid--structure interaction simulation of pulsatile ventricular assist devices", *Computational Mechanics*, 52 (2013) 971-981.

67. S.-B. Raknes, X. Deng, Y. Bazilevs, D.J. Benson, K.-M. Mathisen, and T. Kvamsdal, "Isogeometric rotation-free bending-stabilized cables: Statics, dynamics, bending strips and coupling with shells", *Computer Methods in Applied Mechanics and Engineering*, 263 (2013) 127—143.

68. Y. Bazilevs, M.-C. Hsu, and M.T. Bement, "Adjoint-based control of fluid-structure interaction for computational steering applications", *Procedia Computer Science*, 18 (2013) 1989--1998.

69. A. Korobenko, M.-C. Hsu, I. Akkerman, and Y. Bazilevs, "Aerodynamics simulation of vertical-axis wind turbines", *Journal of Applied Mechanics*, 81 (2013) 021001.

70. Y. Bazilevs, C.C. Long, I. Akkerman, D.J. Benson, and M.J. Shashkov, "Isogeometric analysis of Lagrangian hydrodynamics: Axisymmetric formulation in the rz-cylindrical coordinates", *Journal of Computational Physics* 262 (2014) 244-261.

71. M. Esmaily-Moghadam, Y. Bazilevs, and A.L. Marsden, "A new preconditioning technique for implicitly coupled multidomain simulations with applications to hemodynamics", *Computational Mechanics* 52 (2013) 1141-1152.

72. A.L. Marsden, Y. Bazilevs, C.C. Long, and M. Behr, "Recent advances in computational methodology for simulation of mechanical circulatory assist devices", *WIREs Systems Biology and Medicine* 6 (2014), 169-188.

73. C.C. Long, M. Esmaily-Moghadam, A.L. Marsden, and Y. Bazilevs, "Computation of residence time in the simulation of pulsatile ventricular assist devices", *Computational Mechanics* 54 (2014) 911-919.

74. C.C. Long, A.L. Marsden, and Y. Bazilevs, "Shape optimization of pulsatile ventricular assist devices using FSI to minimize thrombotic risk", *Computational Mechanics* 54 (2014) 921-932.

75. G. Bao, Y. Bazilevs, J.-H. Chung, P. Decuzzi, H.D. Espinosa, M. Ferrari, H. Gao, S.S. Hossain, T.J.R. Hughes, R.D. Kamm, W.K. Liu, A.L. Marsden, and B. Schrefler, "USNCTAM perspectives on mechanics in medicine", *Journal of the Royal Society Interface* 11 (2014) 20140301. Also a report of the US National Committee on Theoretical and Applied Mechanics on Recent Trends in Mechanics.

76. Y. Bazilevs, A. Korobenko, X. Deng, J. Yan, M. Kinzel, and J.O. Dabiri, "FSI modeling of vertical-axis wind turbines", *Journal of Applied Mechanics*, 81 (2014) 081006-081006-8.

77. K. Takizawa, Y. Bazilevs, T.E. Tezduyar, C.C. Long, A.L. Marsden, and K. Schjodt, "ST and ALE-VMS methods for patient-specific cardiovascular fluid mechanics modeling", *Mathematical Models and Methods in Applied Sciences*, 24 (2014) 2437-2486.

78. K. Takizawa, Y. Bazilevs, T.E. Tezduyar, M.-C. Hsu, O. Øiseth, K.M. Mathisen, N. Kostov, and S. McIntyre, "Engineering analysis and design with ALE-VMS and space–time methods", *Archives of Computational Methods in Engineering* 21 (2014) 481-508.

79. Y. Bazilevs, K. Takizawa, T.E. Tezduyar, M.-C. Hsu, N. Kostov, and S. McIntyre, "Aerodynamic and FSI analysis of wind turbines with the ALE-VMS and ST-VMS methods", *Archives of Computational Methods in Engineering* 21 (2014) 359-398.

80. Y. Bazilevs, A. Korobenko, X. Deng, and J. Yan, "Novel structural modeling and mesh moving techniques for advanced FSI simulation of wind turbines", *International Journal for Numerical Methods in Engineering*, 102 (2015) 766–783.

81. M.-C. Hsu, D. Kamensky, Y. Bazilevs, M.S. Sacks, and T.J.R. Hughes, "Fluid–structure interaction analysis of bioprosthetic heart valves: Significance of arterial wall deformation", *Computational Mechanics*, 54 (2014) 1055-1071.

82. D. Kamensky, M.-C. Hsu, D. Schillinger, J.A. Evans, A. Aggarwal, Y. Bazilevs, M.S. Sacks, and T.J.R. Hughes, "An immersogeometric variational framework for fluid–structure interaction: application to bioprosthetic heart valves", *Computer Methods in Applied Mechanics and Engineering*, 284 (2015) 1005-1053.

83. N. Nguyen-Thanh, N. Valizadeh, M.N. Nguyen, H. Nguyen-Xuan, X. Zhuang, P. Areias, G. Zi, Y. Bazilevs, L. De Lorenzis, and T. Rabczuk, "An extended isogeometric thin shell analysis based on Kirchhoff-Love theory", *Computer Methods in Applied Mechanics and Engineering* 284 (2015) 265–291.

84. M. Esmaily-Moghadam, Y. Bazilevs, and A. L. Marsden, "A bi-partitioned iterative algorithm for solving linear systems arising from incompressible flow problems", *Computer Methods in Applied Mechanics and Engineering*, 286 (2015) 40–62.

85. X. Deng, A. Korobenko, J. Yan, and Y. Bazilevs, "Isogeometric Analysis of Continuum Damage in Rotation-Free Composite Shells", *Computer Methods in Applied Mechanics and Engineering* 284 (2015) 349–372.

86. M. Esmaily-Moghadam, Y. Bazilevs, and A.L. Marsden, "Impact of data distribution on the parallel performance of iterative linear solvers with emphasis on CFD of incompressible flows", *Computational Mechanics*, 55 (2015) 93-103.

87. Y. Bazilevs, J. Yan, M. de Stadler, and S. Sarkar, "Computation of the flow over a sphere at Re = 3,700 subjected to uniform and turbulent inflow conditions", *Journal of Applied Mechanics*, 81 (2014) 121003.

88. M. Hillman, J.S. Chen, and Y. Bazilevs, "Variationally Consistent Domain Integration for Isogeometric Analysis", *Computer Methods in Applied Mechanics and Engineering*, 284 (2015) 521-540.

89. B. Augier, J. Yan, A. Korobenko, J. Czarnowski, G. Ketterman, and Y. Bazilevs, "Experimental and numerical FSI study of compliant hydrofoils", *Computational Mechanics*, 55 (2015) 1079–1090.

90. J. Bueno, C. Bona-Casas, Y. Bazilevs, and H. Gomez, "Interaction of complex fluids and solids: Theory, algorithms and application to phase-change-driven implosion", *Computational Mechanics*, 55 (2015) 1105-1118.

91. M.-C. Hsu, C. Wang, A.J. Herrema, D. Schillinger, A. Ghoshal, and Y. Bazilevs, "An interactive geometry modeling and parametric design platform for isogeometric analysis," *Computers & Mathematics with Applications*, 70 (2015) 1481-1500.

92. R. Golshan, A. E. Tejada-Martínez, M. Juha, and Y. Bazilevs, "Large-eddy simulation with near-wall modeling using weakly enforced no-slip boundary conditions", *Computers & Fluids*, 118 (2015) 172–181.

93. Y.Bazilevs, X.Deng, A.Korobenko, F.Lanza di Scalea, S.G.Taylor, M.D.Todd, "Isogeometric Fatigue Damage Prediction in Large-Scale Composite Structures Driven by Dynamic Sensor Data", *Journal of Applied Mechanics*, 82 (2015) 091008.

94. N. Valizadeh, Y. Bazilevs, J.S. Chen, and T. Rabczuk, "A Coupled IGA-Meshfree Discretization of Arbitrary Order of Accuracy and without Global Geometry Parameterization", *Computer Methods in Applied Mechanics and Engineering*, 293 (2015) 20-37.

95. Y. Bazilevs, A. Korobenko, J. Yan, A. Pal, S.M.I. Gohari, S. Sarkar, "ALE–VMS Formulation for Stratified Turbulent Incompressible Flows with Applications", *Mathematical Models and Methods in Applied Science*, 25 (2015) 2349-2375.

96. Y. Bazilevs, K. Takizawa, T. E. Tezduyar, "New directions and challenging computations in fluid dynamics modeling with stabilized and multiscale methods", *Mathematical Models and Methods in Applied Sciences* 25 (2015) 2217-2226.

97. J. Yan, B. Augier, A. Korobenko, J. Czarnowski, G. Ketterman, and Y. Bazilevs, "FSI modeling of a propulsion system based on compliant hydrofoils in a tandem configuration", *Computers & Fluids* 141 (2016) 201-211.

98. M.-C. Hsu, D. Kamensky, F. Xu, J. Kiendl, C. Wang, M.C.H. Wu, J. Mineroff, A. Reali, Y. Bazilevs, and M.S. Sacks, "Dynamic and fluid–structure interaction simulations of bioprosthetic heart valves using parametric design with T-splines and Fung-type material models," *Computational Mechanics*, 55 (2015) 1211-1225.

99. C. Wang, M.C.H. Wu, F. Xu, M.-C. Hsu, and Y. Bazilevs, "Modeling of a hydraulic arresting gear using fluid–structure interaction and isogeometric analysis," *Computers and Fluids* 142 (2017) 3-14.

100. T.-Q. Thai, T. Rabczuk, Y. Bazilevs, and G. Meschke, "A higher-order stress-based gradient-enhanced damage model based on isogeometric analysis", *Computer Methods in Applied Mechanics and Engineering* 304 (2016) 584–604.

101. M. Conti, C. Long, M. Marconi, R. Berchiolli, Y. Bazilevs, and A. Reali, "Carotid artery hemodynamics before and after stenting: A patient specific CFD study", *Computers and Fluids* 141 (2016) 62-74.

102. R. Golshan, A. Tejada-Martinez, M. Juha, and Y. Bazilevs, "LES and RANS simulation of wind- and wave-forced oceanic turbulent boundary layers using the residual-based variational multiscale method with near-wall modeling", *Computers and Fluids* 142 (2017) 96-108.

103. Y. Bazilevs, A. Korobenko, X. Deng, and J. Yan, "Fluid-structure interaction modeling for fatigue-damage prediction in full-scale wind-turbine blades", *Journal of Applied Mechanics*, 83 (2016) 061010.

104. J. Yan, A. Korobenko, X. Deng, and Y. Bazilevs, "Computational free-surface fluid-structure interaction with applications to offshore floating wind turbines", *Computers and Fluids* 141 (2016) 155-174.

105. J. Yan, X. Deng, A. Korobenko, and Y. Bazilevs, "Free-surface flow modeling and simulation of horizontal-axis tidal-stream turbines", *Computers and Fluids* 158 (2017) 157-166.

106. J. Yan, A. Korobenko, A.E. Tejada-Martinez, R. Golshan, and Y. Bazilevs, "A new variational multiscale formulation for stratified incompressible turbulent flows", *Computers and Fluids* 158 (2017) 150-156.

107. E. Remij, F. Pesavento, Y. Bazilevs, D. Smeulders, B. Schrefler, and J. Huyghe, "Isogeometric analysis of a multiphase porous media model for concrete at early age", *Journal of Engineering Mechanics (ASCE)* 144 (2017) 04017169.

108. T. M. van Opstal, J. Yan, C. Coley, J. A. Evans, T. Kvamsdal, and Y. Bazilevs, "Isogeometric divergence-conforming variational multiscale formulation of incompressible turbulent flows", *Computer Methods in Applied Mechanics and Engineering,* 316 (2017) 859-879.

109. M. C. H. Wu, D. Kamensky, C. Wang, A. J. Herrema, F. Xu, M. S. Pigazzini, A. Verma, A. L. Marsden, Y. Bazilevs, and M.-C. Hsu, "Optimizing fluid-structure interaction systems with immersogeometric analysis and surrogate modeling: application to a hydraulic arresting gear", *Computer Methods in Applied Mechanics and Engineering,* 316 (2017) 668–693.

110. N. Nguyen-Thanh, K. Zhou, X. Zhuang, P. Areias, H. Nguyen-Xuan, Y. Bazilevs, and T. Rabczuk, "Isogeometric analysis of large deformation thin shells using RHT-splines for multiple patches coupling", *Computer Methods in Applied Mechanics and Engineering,* 316 (2017) 1157-1178.

111. J. Bueno, Y. Bazilevs, R. Juanes, and H. Gomez, "Droplet motion driven by tensotaxis", *Extreme Mechanics Letters*, 13 (2017) 10-16.

112. A. Korobenko, J. Yan, S.M.I. Gohari, S. Sarkar, and Y. Bazilevs, "FSI simulation of two back-to-back wind turbines in atmospheric boundary layer flow", *Computers and Fluids,* 158 (2017) 167-175.

113. F. Xu, G. Moutsanidis, D. Kamensky, M.-C. Hsu, M. Murugan, A. Ghoshal, and Y. Bazilevs, "Compressible flows on moving domains: Stabilized methods, weakly enforced essential boundary conditions, sliding interfaces, and application to gas-turbine modeling", *Computers and Fluids,* 158 (2017) 201-220.

114. D. Kamensky, J.A. Evans, M.-C. Hsu, and Y. Bazilevs, "Projection-based stabilization of interface Lagrange multipliers in immersogeometric fluid–thin structure interaction analysis, with application to heart valve modeling", *Computers and Mathematics with Applications* 74 (2017) 2068-2088.

115. Y. Bazilevs, K. Kamran, G. Moutsanidis, D.J. Benson, and E. Onate, "A new formulation for air-blast fluid–structure interaction using an immersed approach. Part I: Basic methodology and FEM-based simulations", *Computational Mechanics* 60 (2017) 83–100.

116. Y. Bazilevs, G. Moutsanidis, J. Bueno, K. Kamran, D. Kamensky, M.C. Hillman, H. Gomez, J.S. Chen, "A new formulation for air-blast fluid–structure interaction using an immersed approach. Part II: Coupling of IGA and meshfree discretizations", *Computational Mechanics* 60 (2017) 101–116.

117. M. Murugan, A. Ghoshal, F. Xu, M.-C. Hsu, Y. Bazilevs, L. Bravo, and K. Kerner, "Analytical study of articulating turbine rotor blade concept for improved off-design performance of gas turbine engines", *Journal of Engineering for Gas Turbines and Power* 139 (2017) 102601.

118. J. Bueno, H. Casquero, Y. Bazilevs, and H. Gomez, "Three-dimensional dynamic simulation of elastocapillarity", *Meccanica* 53 (2018) 1221-1237.

119. C. Bertoglio, A. Caiazzo, Y. Bazilevs, M. Braack, M. Esmaily-Moghadam, V. Gravemeier, A.

Marsden, O. Pironneau, I.E. Vignon-Clementel, and W.A. Wall, "Benchmark problems for numerical treatment of backflow at open boundaries", *International Journal for Numerical Methods in Biomedical Engineering* 34 (2018). DOI: 10.1002/cnm.2918.

120. Y. Bazilevs and M. Pigazzini, A. Ellison, and H. Kim, "A New Multi-Layer Approach for Progressive Damage Simulation in Composite Laminates Based on Isogeometric Analysis and Kirchhoff--Love Shells. Part I: Basic Theory and Modeling of Delamination and Transverse Shear", *Computational Mechanics* 62 (2018) 563–585. https://doi.org/10.1007/s00466-017-1513-1

121. M. Pigazzini, Y. Bazilevs, A. Ellison, and H. Kim, "A New Multi-Layer Approach for Progressive Damage Simulation in Composite Laminates Based on Isogeometric Analysis and Kirchhoff--Love Shells. Part II: Impact Modeling", *Computational Mechanics* 62 (2018) 587–601. Published online. https://doi.org/10.1007/s00466-017-1514-0

122. J. Yan, Y. Bazilevs, S. Lin, and G. Wagner, "Isogeometric analysis of multi-phase flows with surface tension and with application to dynamics of rising bubbles", *Computers and Fluids* (2018) https://doi.org/10.1016/j.compfluid.2018.04.017.

123. T.A. Helgedagsrud, Y. Bazilevs, A. Korobenko, K.M. Mathisen, and O.A. Øiseth, "Using ALE-VMS to compute aerodynamic derivatives of bridge sections", *Computers and Fluids* (2018). https://doi.org/10.1016/j.compfluid.2018.04.037

124. D. Kamensky, F. Xu, C.-H. Lee, J. Yan, Y. Bazilevs, and M.-C. Hsu, "A new contact formulation based on a volumetric potential: Application to isogeometric simulations of atrioventricular valves", *Computer Methods in Applied Mechanics and Engineering* 330 (2018) 522-546.

125. Y. Yu, D. Kamensky, M.-C. Hsu, X.Y. Lu, Y. Bazilevs, and T.J.R. Hughes, "Error estimates for projection-based dynamic augmented Lagrangian boundary condition enforcement, with application to fluid–structure interaction", *Mathematical Models and Methods in Applied Science*, 28 (2018) 2457-2509.

126. J. Bueno, Y. Bazilevs, R. Juanes, and H. Gomez, "Wettability control of droplet durotaxis", *Soft Matter* 14 (2018) 1417-1426. DOI:10.1039/C7SM01917C

127. D. Kamensky, G. Moutsanidis, and Y. Bazilevs, "Hyperbolic phase field modeling of brittle fracture: part I - theory and simulations", *Journal of the Mechanics and Physics of Solids* 121 (2018) 81-98.

128. G. Moutsanidis, D. Kamensky, J. S. Chen, and Y. Bazilevs, "Hyperbolic phase field modeling of brittle fracture: part II - immersed IGA-RKPM coupling for air-blast-structure interaction", *Journal of the Mechanics and Physics of Solids* 121 (2018) 114-132.

129. M. Pigazzini, Y. Bazilevs, A. Ellison, and H. Kim, "Isogeometric Analysis for Simulation of Progressive Damage in Composite Laminates", *Journal of Composite Materials,* 52 (2018) 3471-3489.

130. T.E. Tezduyar, K. Takizawa, Y. Bazilevs, "Fluid–Structure Interaction and Flows with Moving Boundaries and Interfaces", *Encyclopedia of Computational Mechanics Second Edition*, Wiley (2018) pp. 1-53. https://doi.org/10.1002/9781119176817.ecm2069

131. T.A. Helgedagsrud, Y. Bazilevs, K.M. Mathisen, and O.A. Øiseth, "Computational and experimental investigation of free vibration and flutter of bridge decks", *Computational Mechanics,* 63 (2019) 121-136.

132. T.A. Helgedagsrud, I. Akkerman, Y. Bazilevs, K.M. Mathisen, and O.A. Øiseth, "Isogeometric Modeling and Experimental Investigation of Moving-Domain Bridge Aerodynamics", *ASCE Journal of Engineering Mechanics,* 145 (2019) 04019026.

133. A. Korobenko, Y. Bazilevs. K. Takizawa, and T.E. Tezduyar, "Computer modeling of wind turbines: 1. ALE-VMS and ST-VMS aerodynamic and FSI analysis", *Archives of Computational Methods in Engineering* (2018). Accepted for publication.

134. Y. Bazilevs, J. Yan, X. Deng, and A. Korobenko, "Computer modeling of wind turbines: 2. Free-surface FSI and fatigue-damage", *Archives of Computational Methods in Engineering* (2018). Accepted for publication.

135. D. Kamensky and Y. Bazilevs, "tIGAr: Automating isogeometric analysis with FEniCS", *Computer Methods in Applied Mechanics and Engineering,* 344 (2019) 477-498.

136. G. Moutsanidis, D. Kamensky, D.Z. Zhang, Y. Bazilevs, and C.C. Long, "Modeling strong discontinuities in the material point method using a single velocity field", *Computer Methods in Applied Mechanics and Engineering,* 345 (2019) 584-601.

137. M.S. Pigazzini, D. Kamensky, D.A.P. van Iersel, M.D. Alaydin, J.J.C. Remmers, and Y. Bazilevs, "Gradient-enhanced damage modeling in Kirchhoff–Love shells: Application to isogeometric analysis of composite laminates", *Computer Methods in Applied Mechanics and Engineering,* 346 (2019) 152-179.

138. D. Kamensky, M. Behzadinasab, J.T. Foster, and Y. Bazilevs, "Peridynamic modeling of frictional contact", *Journal of Peridynamics and Nonlocal Modeling*, 1 (2019) 107-121. DOI:https://doi.org/10.1007/s42102-019-00012-y.

139. F. Xu, Y. Bazilevs, and M.-C. Hsu, "Immersogeometric analysis of compressible flows with application to aerodynamic simulation of rotorcraft", *Mathematical Models and Methods in Applied Science*, 29 (2019) 905-938. DOI: https://doi.org/10.1142/S0218202519410033.

140. T. Helgedagsrud, Y. Bazilevs, K. Mathisen, J. Yan, and O. Oiseth, "Modeling and simulation of bridge-section buffeting response in turbulent flow", *Mathematical Models and Methods in Applied Science*, 29 (2019) 939-966. DOI: https://doi.org/10.1142/S0218202519410045.

141. Y. Bazilevs, K. Takizawa, and T.E. Tezduyar, "Computational analysis methods for complex unsteady flow problems", *Mathematical Models and Methods in Applied Science*, 29 (2019) 825-838. DOI: https://doi.org/10.1142/S0218202519020020.

142. T. Helgedagsrud, Y. Bazilevs, K. Mathisen, and O. Oiseth, "ALE-VMS methods for wind-resistant design of long-span bridges", *Journal of Wind Engineering and Industrial Aerodynamics*, (2019). Published online.

143. G. Moutsanidis, J.J. Koester, M.R. Tupek, J.S. Chen, and Y. Bazilevs, "B-bar and F-bar approaches for the treatment of near-incompressibility in meshfree and immersed-particle methods", *Computational Particle Mechanics*, 7 (2020) 309-327.

144. M.F.P. ten Eikelder, Y. Bazilevs and I. Akkerman, "A theoretical framework for discontinuity capturing: Joining variational multiscale and variation entropy", *Computer Methods in Applied Mechanics and Engineering*, 359 (2020) 112664.

145. K. Takizawa, Y. Bazilevs, T.E. Tezduyar, and M.-C. Hsu, "Computational Cardiovascular Flow Analysis with the Variational Multiscale Methods", *Journal of Advanced Engineering and Computation*, 3 (2019) 366-405.

146. Y. Bazilevs, D. Kamensky, G. Moutsanidis, and S. Shende, "Residual-Based Shock Capturing in Solids", *Computer Methods in Applied Mechanics and Engineering*, 358 (2020) 112638.

147. N. Kozak, F. Xu, M.R. Rajanna, L. Bravo, M. Murugan, A. Ghoshal, Y. Bazilevs, and M.-C. Hsu, "High-fidelity finite element modeling and analysis of adaptive gas turbine stator-rotor flow interaction at off-design conditions", *Journal of Mechanics*, 36 (2020) 595-606.

148. T. Terahara, K. Takizawa, T.E. Tezduyar, Y. Bazilevs, and M.-C. Hsu, "Heart valve isogeometric sequentially-coupled FSI analysis with the space--time topology change method", *Computational Mechanics*, 65 (2020) 1167-1187.

149. J.A. Evans, D. Kamensky, and Y. Bazilevs, "Variational multiscale modeling with discretely divergence-free subscales", *Computers and Mathematics with Applications*, 80 (2020) 2517-2537.

150. Q. Zhu, J. Yan, A. Tejada-Martinez, and Y. Bazilevs, "Variational multiscale modeling of Langmuir turbulent boundary layers in shallow water using Isogeometric Analysis", *Mechanics Research Communications*, 108 (2020) 103570.

151. Y. Bazilevs, K. Takizawa, T.E. Tezduyar, M.-C. Hsu, Y. Otoguro, H. Mochizuki, M. C.-H. Wu, "Wind Turbine and Turbomachinery Computational Analysis with the ALE and Space-Time Variational Multiscale Methods and Isogeometric Discretization", *Journal of Advanced Engineering and Computation*, 4 (2020) 1-32.

152. M. Ravensbergen, T. Helgedagsrud, Y. Bazilevs, and A. Korobenko, "A variational multiscale framework for atmospheric turbulent flows over complex environmental terrains", *Computer Methods in Applied Mechanics and Engineering,* 368 (2020) 113182.

153. M. Behzadinasab, N. Trask, and Y. Bazilevs, "A unified, stable and accurate meshfree framework for peridynamic correspondence modeling. Part I: Core methods", *Journal of Peridynamics and Nonlocal Modeling*, 3 (2021) 24-45.

154. M. Behzadinasab, J.T. Foster, and Y. Bazilevs, "A unified, stable and accurate meshfree framework for peridynamic correspondence modeling. Part II: Wave propagation and enforcement of stress boundary conditions", *Journal of Peridynamics and Nonlocal Modeling*, 3 (2021) 46-66.

155. G. Moutsanidis, C.C. Long, and Y. Bazilevs, "IGA-MPM: The Isogeometric Material Point Method", *Computer Methods in Applied Mechanics and Engineering,* 372 (2020) 113346.

156. G. Moutsanidis, W. Li, and Y. Bazilevs, "Reduced Quadrature for FEM, IGA and Meshfree Methods", *Computer Methods in Applied Mechanics and Engineering,* 373 (2021) 113521.

157. K. Takizawa, Y. Bazilevs, T.E. Tezduyar, and A. Korobenko, "Computational Flow Analysis in Aerospace, Energy and Transportation Technologies with the Variational Multiscale Methods", *Journal of Advanced Engineering and Computation*, 4 (2020) 83-117.

158. N. Kozak, M.R. Rajanna, M.C.H. Wu, M. Murugan, L. Bravo, A. Ghoshal, M.-C. Hsu, and Y. Bazilevs, "Optimizing Gas Turbine Performance Using the Surrogate Management Framework and High-Fidelity Flow Modeling", *Energies*, 13 (2020) 4283.

159. Y. Bazilevs, K. Takizawa, M. C.-H. Wu, T. Kuraishi, R. Avsar, Z. Xu, T.E. Tezduyar, "Gas turbine computational flow and structure analysis with isogeometric discretization and a complex-geometry mesh generation method", *Computational Mechanics* 67 (2021) 57-84.

160. D. Codoni, G. Moutsanidis, M.-C. Hsu, Y. Bazilevs, C. Johansen, and A. Korobenko, "Stabilized methods for high-speed compressible flows: Toward hypersonic simulations", *Computational Mechanics* 67 (2021) 785-809.

161. M.D. Alaydin, D.J. Benson, and Y. Bazilevs, "An Updated Lagrangian Framework for Isogeometric Kirchhoff-Love Thin-Shell Analysis", *Computer Methods in Applied Mechanics and Engineering* 384 (2021) 113977.

162. J. Wang, G. Zhou, M. Hillman, A. Madra, Y. Bazilevs, J. Du, and K. Su, "Consistent Immersed Volumetric Nitsche Methods for Composite Analysis", *Computer Methods in Applied Mechanics and Engineering* 385 (2021) 114042.

163. M. Behzadinasab, G Moutsanidis, N Trask, JT Foster, and Y Bazilevs, "Coupling of IGA and peridynamics for air-blast fluid-structure interaction using an immersed approach", *Forces in Mechanics* 4 (2021) 100045.

164. M Behzadinasab, M Hillman, and Y Bazilevs, "IGA-PD penalty-based coupling for immersed air-blast fluid–structure interaction: a simple and effective solution for fracture and fragmentation", *Journal of Mechanics* 37 (2021) 680-692.

165. M. Behzadinasab, M. Alaydin, N. Trask, Y. Bazilevs, "A general-purpose, inelastic, rotation-free Kirchhoff–Love shell formulation for peridynamics", *Computer Methods in Applied Mechanics and Engineering,* 389 (2022) 114422.

166. M. Alaydin, M. Behzadinasab, Y. Bazilevs, "Isogeometric Analysis of Multilayer Composite Shell Structures: Plasticity, Damage, Delamination and Impact Modeling", *International Journal of Solids and Structures,* 252 (2022) 111782.

167. M. R. Rajanna, E. L. Johnson, D. Codoni, A. Korobenko, Y. Bazilevs, N. Liu, J. Lua, N. D. Phan, M.-C. Hsu, "Finite Element Methodology for Aircraft Aerodynamics: Development, Simulation, and Validation", *Computational Mechanics*, (2022) 1-15.

168. Y. Bazilevs, M. Behzadinasab, and J.T. Foster, "Simulating concrete failure using the Microplane (M7) constitutive model in correspondence-based peridynamics: Validation for classical fracture tests and extension to discrete fracture", *Journal of the Mechanics and Physics of Solids*, (2022) 104947.

169. S. Shende, M. Behzadinasab, G. Moutsanidis, and Y. Bazilevs, "Simulating Air Blast on Concrete Structures Using the Volumetric Penalty Coupling of Isogeometric Analysis and Peridynamics", *Mathematical Models and Methods in Applied Science*, 32 (2022) 2477-2496.

170. W. Li, G. Moutsanidis, M. Behzadinasab, M. Hillman, and Y. Bazilevs, "Reduced Quadrature for Finite Element and Isogeometric Methods in Nonlinear Solids", *Computer Methods in Applied Mechanics and Engineering,* 399 (2022) 115389.

171. K. Takizawa, Y. Bazilevs, and T.E. Tezduyar, "Mesh Moving Methods in Flow Computations with the Space–Time and Arbitrary Lagrangian–Eulerian Methods", *Journal of Advanced Engineering and Computation*, 6 (2022) 85-112.

172. K. Takizawa, Y. Bazilevs, T.E. Tezduyar, M.-C. Hsu, and T. Terahara, "Computational Cardiovascular Medicine with Isogeometric Analysis", *Journal of Advanced Engineering and Computation*, 6 (2022) DOI: http://dx.doi.org/10.55579/jaec.202263.381.

173. Y. Bazilevs, K. Takizawa, T.E. Tezduyar, A. Korobenko, T. Kuraishi, and Y. Otoguro, "Computational Aerodynamics with Isogeometric Analysis", *Journal of Mechanics*, 39 (2023) 24-39.

174. M. R. Rajanna, E. L. Johnson, N. Liu, A. Korobenko, Y. Bazilevs, J. Lua, N. D. Phan, M.-C. Hsu, "Fluid–structure interaction modeling with non-matching interface discretizations for compressible flow problems: computational framework and validation study", *Mathematical Models and Methods in Applied Science*, 32 (2022) 2497-2528.

175. S. Niu, E. Zhang, Y. Bazilevs, and V. Srivastava, "Modeling finite-strain plasticity using physics informed neural network and assessment of the network performance", *Journal of the Mechanics and Physics of Solids*, 172 (2023) 105177.

176. K. Takizawa, Y. Bazilevs, and T.E. Tezduyar, "Isogeometric Discretization Methods in Computational Fluid Mechanics", *Mathematical Models and Methods in Applied Science*, 32 (2022) 2359-2370.

177. W. Li and Y. Bazilevs, "An Improved Formulation for Reduced Quadrature in Computational Solid Mechanics", *Computational Mechanics*, 71 (2023) 867-878.

178. M. Alaydin and Y. Bazilevs, "Multilayer Shells Interacting Through Friction", *Journal of Applied Mechanics*, 90 (2023) 121012.

179. E.L. Johnson, M.-C. Hsu, Y. Bazilevs, and T.J.R. Hughes, "Preface: Recent Advances in Isogeometric Analysis", *Journal of Mechanics*, 39 (2023) 1.

180. M Eikelder, S Stoter, Y Bazilevs, and D Schillinger, "Constraints for eliminating the Gibbs phenomenon in finite element approximation spaces", *Mathematical Models and Methods in Applied Science*, 34 (2024) 345-384.

181. S. Shende and Y. Bazilevs, "A New Stabilized Formulation for the Simulation of Underwater Explosions Using Isogeometric Analysis", *Computer Methods in Applied Mechanics and Engineering,* 417 (Part B) (2023) 116324.

182. D. Codoni, A. Bayram, M. Rajanna, C. Johansen, M.-C. Hsu, Y. Bazilevs, and A. Korobenko, "Heat Flux Prediction for Hypersonic Flows Using a Stabilized Formulation", *Computational Mechanics*, 73 (2024) 419-426.

183. T.E. Tezduyar, K. Takizawa, and Y. Bazilevs, "Isogeometric analysis in computation of complex-geometry flow problems with moving boundaries and interfaces", *Mathematical Models and Methods in Applied Science*, 34 (2024) 7-56.

184. R. Hunt, Z. Zhao, E. Silver, J. Yan, Y. Bazilevs, and D.M. Harris, "Drag on a partially immersed sphere at the capillary scale", *Physical Review Fluids*, 8 (2023) 084003.

185. H. Nguyen, W. Li, Z.P. Bazant, and Y. Bazilevs, "Isogeometric Smooth Crack-Band Model (isCBM) Using Spress-Sprain Relations Adapted to Microplane Theory", *Journal of the Mechanics and Physics of Solids*, 181 (2023) 105470.

186. J. Wang, M. Behzadinasab, W. Li, and Y. Bazilevs, "A Stable Formulation of Correspondence-Based Peridynamics with a Computational Structure of a Method Using Nodal Integration", *International Journal for Numerical Methods in Engineering*, 125 (2024) e7273.

187. E. Wobbes, Y. Bazilevs, T. Kuraishi, Y. Otoguro, K. Takizawa, and T.E. Tezduyar, "Advanced IGA Mesh Generation and Application to Structural Vibrations", *Computational Mechanics*, (2024). Published online.

188. M. R. Rajanna, M. Jaiswal, E. L. Johnson, N. Liu, A. Korobenko, Y. Bazilevs, J. Lua, N. D. Phan, M.-C. Hsu, "Fluid–structure interaction modeling with nonmatching interface discretizations for compressible flow problems: simulating aircraft tail buffeting", *Computational Mechanics*, (2024). Published online.

189. H. Nguyen, J. Wang, and Y. Bazilevs, "A smooth Crack-Band Model for Anisotropic Materials: Continuum Theory and Computations with the RKPM Meshfree Method", *International Journal for Solids and Structures*, 288 (2024) 112618.

190. J. Wang, and Y. Bazilevs, "A general-purpose, meshfree Kirchhoff–Love shell formulation", *Engineering with Computers*, (2024). Published online.

191. K. Ma and Y. Bazilevs, "Isogeometric Analysis of Architected Materials and Structures", *Engineering with Computers*, (2024). Published online.

192. Sreehari Rajan Kattil, Yuri Bazilevs, Michael A. Sutton, Subramani Sockalingam, Karan Kodagali, Tusit Weerasooriya, and Stephen Alexander, "SUPG-Based Finite Element Method for Direct Material Property Determination Utilizing Full-Field Deformation Measurements", *Journal of Applied Mechanics*, 91 (2024) 081007-1.

193. J. Wang, M. Hillman, D. Wilmes, J. Magallanes and Y. Bazilevs, "Smoothed naturally stabilized RKPM for non-linear explicit dynamics with novel stress gradient update", *Computational Mechanics*, (2024). Published online.

194. W. Li, H. Nguyen, and Y. Bazilevs, "Isogeometric Multilayer Thin-Shell Analysis of Failure in Composite Structures with Hygrothermal Effects", *International Journal of Fracture*, (2024). Accepted for publication.

195.

II. **Books and Book Chapters**

1. T.J.R. Hughes, J.A. Cottrell, and Y. Bazilevs, "Isogeometric shells analysis," *Proceedings of 2005 SMAC Symposium on Applied Mechanics and Multi-Physics Simulations of High-Consequence*

Engineering Systems. Anniversary Volume in Honor of Prof. Charles R. Steele. (eds. Fong, Mitiguy, and Taber). April 18, 2005.

2. T.J.R. Hughes, J.A. Cottrell, A. Reali, and Y. Bazilevs, "Computational geometry and the analysis of solids and structures," pp 21-40 in *Computational Mechanics – Solids, Structures and Coupled Problems*. (eds. C.A. Mota Soares, J.A.C. Martins, H.C. Rodriguez, and J.A.C. Ambrosio), Springer, Dordrecht, the Netherlands, 2006.

3. Y. Bazilevs, V.M. Calo, T.J.R. Hughes, and G. Scovazzi, "Variational Multiscale Theory of LES Turbulence Modeling," Proceedings of ERCOFTAC Workshop on Direct and Large-Eddy Simulation, (editor V. Armenio), Springer, 2009.

4. Y. Bazilevs, V.M. Calo, T.J.R. Hughes, and G. Scovazzi, "Residual-based Variational Multiscale Theory of LES Turbulence Modeling," Colloquium on Multiscale Methods in Computational Mechanics. (MMCM 2009), Rolduc, The Netherlands, March 11-13, 2009, (editors R. De Borst and E. Ramm), Springer, 2009.

5. **BOOK: J.A. Cottrell, T.J.R. Hughes, and Y. Bazilevs, "Isogeometric Analysis. Toward Integration of CAD and FEA", Wiley 2009.**

6. I. Akkerman, K. Benner, and Y. Bazilevs, "Free-Surface Flow and Fluid-Object Interaction", Chapter in the Book of Selected Papers of Marine 2011, IV International Conference on Computational Methods in Marine Engineering, Springer 2013.

7. Y. Bazilevs, M.-C. Hsu, I. Akkerman, and D.J. Benson, "Enabling Computational Methods for Offshore Wind Turbines", Chapter in the Book of Selected Papers of Marine 2011, IV International Conference on Computational Methods in Marine Engineering, Springer 2013.

8. **BOOK: Y. Bazilevs, K. Takizawa, and T.E. Tezduyar, "Computational Fluid--Structure Interaction: Methods and Applications", Wiley 2013.**

9. K. Takizawa, Y. Bazilevs, T.E. Tezduyar, C.C. Long, A.L. Marsden, and K. Schjodt, "Patient-specific cardio-vascular fluid mechanics analysis with the ST and ALE-VMS methods", in S.R. Idelsohn, editor, Numerical Simulations of Coupled Problems in Engineering, volume 33 of Computational Methods in Applied Sciences, Chapter 4, Springer, 2014, ISBN 978-3-319-06135-1.

10. K. Takizawa, Y. Bazilevs, T.E. Tezduyar, M.-C. Hsu, O. Øiseth, K.M. Mathisen, N. Kostov, and S. McIntyre, "Computational engineering analysis and design with ALE-VMS and ST methods", in S.R. Idelsohn, editor, Numerical Simulations of Coupled Problems in Engineering, volume 33 of Computational Methods in Applied Sciences, Chapter 13, Springer, 2014, ISBN 978-3-319-06135-1.

11. Y. Bazilevs, K. Takizawa, T.E. Tezduyar, M.-C. Hsu, N. Kostov, and S. McIntyre, "Computational wind-turbine analysis with the ALE-VMS and ST-VMS methods", in S.R. Idelsohn, editor, Numerical Simulations of Coupled Problems in Engineering, volume 33 of Computational Methods in Applied Sciences, Chapter 14, Springer, 2014, ISBN 978-3-319-06135-1.

12. **BOOK: Y. Bazilevs, K. Takizawa, and T.E. Tezduyar, "Computational Fluid--Structure Interaction: Methods and Applications", (Japanese translation of Item 8.), Morikita Publishing Company, Japan, 2015.**

13. **EDITED BOOK: Y. Bazilevs and K. Takizawa, "Advances in Computational Fluid-Structure Interaction and Flow Simulation: New Methods and Challenging Applications", volume in Modeling and Simulation in Science, Engineering and Technology series, Birkhauser, 2016.**

14. Ming-Chen Hsu, Chenglong Wang, Michael C.H. Wu, Fei Xu, and Yuri Bazilevs, "Fluid–Structure Interaction Modeling and Isogeometric Analysis of a Hydraulic Arresting Gear at Full Scale", in Y. Bazilevs and K. Takizawa, editors, Advances in Computational Fluid-Structure Interaction and Flow Simulation: New Methods and Challenging Applications, Birkhauser, 2016.

15. A. Korobenko, X. Deng, J. Yan, and Y. Bazilevs, "Recent Advances in Fluid–Structure Interaction Simulations of Wind Turbines", in Y. Bazilevs and K. Takizawa, editors, Advances in Computational Fluid-Structure Interaction and Flow Simulation: New Methods and Challenging Applications, Birkhauser, 2016.

16. J.A. Evans, C. Coley, R.M. Aronson, C.L. Wetterer-Nelson, and Y. Bazilevs, "Residual-Based Large Eddy Simulation with Isogeometric Divergence-Conforming Discretizations", Frontiers in Computational Fluid-Structure Interaction and Flow Simulation, Birkhäuser, Cham, 2018.

17. Y Bazilevs, J Yan, X Deng, and A Korobenko, "Simulating Free-Surface FSI and Fatigue Damage in Wind-Turbine Structural Systems", Frontiers in Computational Fluid-Structure Interaction and Flow Simulation, Birkhäuser, Cham, 2018.

18. A Korobenko, M-C Hsu, and Y Bazilevs, "A Computational Steering Framework for Large-Scale Composite Structures", Handbook of Dynamic Data Driven Applications Systems, Springer, 2018.

19. A Korobenko, M Pigazzini, X Deng, and Y Bazilevs, "Multiscale DDDAS Framework for Damage Prediction in Aerospace Composite Structures", Handbook of Dynamic Data Driven Applications Systems, Springer, 2018.

20. Kamensky, D., Alaydin, M.D., Bazilevs, Y. (2022). A Review of Nonlocality in Computational Contact Mechanics. In: Aldakheel, F., Hudobivnik, B., Soleimani, M., Wessels, H., Weißenfels, C., Marino, M. (eds) Current Trends and Open Problems in Computational Mechanics. Springer, Cham. https://doi.org/10.1007/978-3-030-87312-7_23.

21. M. Behzadinasab, S. Shende, G. Moutsanidis, and Y. Bazilevs, "Immersed Coupling of Isogeometric Analysis and Peridynamics for Blast Fluid-Structure Interaction Simulation", Frontiers in Computational Fluid-Structure Interaction and Flow Simulation, Birkhäuser, Cham, 2023.

22. E. Wobbes, Y. Bazilevs, T. Kuraishi, Y. Otoguro, K. Takizawa and T.E. Tezduyar, "Advanced IGA Mesh Generation and Application to Structural Vibrations", Frontiers in Computational Fluid-Structure Interaction and Flow Simulation, Birkhäuser, Cham, 2023.

23. G. Moutsanidis, D. Kamensky, Y. Bazilevs, "An Immersed Isogeometric-RKPM Framework for Air-Blast-Structure Interaction", Frontiers in Computational Fluid-Structure Interaction and Flow Simulation, Birkhäuser, Cham, 2023.

III. Refereed Conference Proceedings

1. T.J.R. Hughes, J.A. Cottrell, and Y. Bazilevs, "Isogeometric structural analysis," *5th International Conference on Computation of Shell and Spatial Structures*, Salzburg, June 1-4, 2005.

2. T.J.R. Hughes, J.A. Cottrell, A. Reali, and Y. Bazilevs, "Computational geometry and the analysis of solids and structures," *3rd European Conference on Computational Mechanics*, Lisbon, June 5-9, 2006.

3. Y. Zhang, Y. Bazilevs, S. Goswami, C. Bajaj, and T.J.R. Hughes, "Patient-specific vascular NURBS modeling for isogeometric analysis of blood flow," *15th International Meshing Roundtable Conference*, pp. 73-92. Birmingham, AL. September 17-20, 2006.

4. C. Bajaj, S. Goswami, Z. Yu, Y. Zhang, Y. Bazilevs, and T.J.R. Hughes, "Patient-specific heart models from high resolution CT," *CompIMAGE*, Coimbra, Portugal, October 20-21, 2006.

5. Y. Bazilevs, Y. Zhang, V. Calo, S. Goswami, C. Bajaj, and T.J.R. Hughes, "Isogeometric analysis of blood flow: a NURBS-based approach," *CompIMAGE*, Coimbra, Portugal, October 20-21, 2006.

6. Y. Bazilevs, V.M. Calo, Y. Zhang, and T.J.R. Hughes, "A fully integrated approach to fluid-structure interaction," *Coupled Problems*, Ibiza, Spain, May 21-23, 2007.

7. Y. Bazilevs, V.M. Calo, J.A. Cottrell, T.J.R. Hughes, A. Reali, and G. Scovazzi, "Variational multiscale residual-driven turbulence modeling for large eddy simulation of incompressible flows", *ECCOMAS Thematic Conference on Multiscale Computational Methods for Solids and Fluids*, Cachan, France, November 28-30, 2007.

8. Y. Bazilevs, V.M. Calo, J.A. Cottrell, T.J.R. Hughes and Y. Zhang, "Isogeometric modeling and analysis for naval ship structures," *Marine 2007*, Barcelona, Spain, June 5-7, 2007.

9. T. Elguedj, Y. Bazilevs, V.M. Calo, and T.J.R. Hughes, "F-bar projection method for finite deformation lasticity and plasticity using NURBS-based isogeometric analysis," *ESAFORM2008*, Lyon, France, April 23 – April 25, 2008.

10. Y. Bazilevs, V.M. Calo, T.J.R. Hughes, and Y. Zhang, "Modeling and computation of patient-specific vascular fluid-structure interaction using Isogeometric Analysis," *6th International Conference on Computation of Shells and Spatial Structures,* Cornell University, Ithaca, NY, May 28-May 31, 2008.

11. V.M. Calo, H. Gomez, Y. Bazilevs, G.P. Johnson, and T.J.R. Hughes, "Simulation of Engineering Applications Using Isogeometric Analysis," *TeraGrid 08*, Las Vegas, Nevada, June 9-13, 2008

12. D.J. Benson, Y. Bazilevs, and T.J.R. Hughes, "Preliminary Results for an Isogeometric Shell," *10th International LS-DYNA Users Conference*, Dearborn, MI, USA, June 8 – June 10, 2009.

13. Y. Bazilevs, V.M. Calo, J.A. Cottrell, J. Evans, T.J.R. Hughes, S. Lipton, M.A. Scott, and T.W. Sederberg, "Isogeometric Analysis: Toward unification of CAD and FEA," *6th International Conference on Engineering Computational Technology*, Athens, Greece, September 2 – September 5, 2008.

14. Y. Zhang, W. Wang, X. Liang, Y. Bazilevs, M.-C. Hsu, T. Kvamsdal, R. Brekken, and J. Isaksen, "High-Fidelity Tetrahedral Mesh Generation from Medical Imaging Data for Fluid-Structure Interaction

Analysis of Cerebral Aneurysms," *International Conference on Computational & Experimental Engineering and Sciences*, Phuket, Thailand, April 8 – April 13, 2009.

15. D.J. Benson, Y. Bazilevs, M.-C. Hsu and T.J.R. Hughes, "Large Deformation Formulations for Isogeometric Shells," *Marine 2009*, Trondheim, Norway, June 15-17, 2009.

16. Y. Bazilevs, M.-C. Hsu, D.J Benson, and T.E. Tezduyar, "Computational Fluid-Structure Interaction for Wind Energy Applications," *Marine 2009*, Trondheim, Norway, June 15-17, 2009.

17. C.E. Kees, M.W. Farthing, I. Akkerman, and Y. Bazilevs. "A Hybrid Level Set Methods for Free Surface Flows", *In Proceedings of the 18th International Conference on Water Resources*, June 21-24, 2010.

18. C.E. Kees, M.W. Farthing, I. Akkerman, and Y. Bazilevs. "Hybrid Level Set Methods for Free Surface Flow", *In Proceedings of the 27th Army Science Conference*, November 28-December 2, 2010.

19. G. Long, H.S. Kim, A. Marsden, Y. Bazilevs and J. Schulze, "Immersive Volume Rendering of Blood Vessels", *In Proceedings of SPIE Electronic Imaging 2012*, January 22-26, 2012.

20. Y. Bazilevs, A. Korobenko, X. Deng, J. Tippmann, and M.-C. Hsu, "Wind turbine simulation: Structural mechanics, FSI, and computational steering", Coupled Problems, Ibiza, Spain, June 17-19, 2013.

21. S. B. Raknes, Y. Bazilevs, K. M. Mathisen, T. Kvamsdal and K. M. Okstad, "Recent developments in isogeometric analysis of thin structures", CD-ROM Proceedings of the 6th European Congress on Computational Methods in Applied Sciences and Engineering, Vienna, Austria, 10–14, 2012.

22. S. B. Raknes, K. M. Mathisen, B. Haugen, X. Deng, Y. Bazilevs, and T. Kvamsdal, "Isogeometric Rotation-Free Large-Deformation Euler-Bernoulli Beam Formulation", MekIT'13 Seventh National Conference on Computational Mechanics, Trondheim 13-14 May 2013.

23. M. Ruess, Y. Bazilevs, D. Schillinger, N. Zander, and E. Rank, "Weakly enforced boundary conditions for the NURBS-based finite cell method", CD-ROM Proceedings of the 6th European Congress on Computational Methods in Applied Sciences and Engineering, Vienna, Austria, September 10–14, 2012.

24. M. Esmaily-Moghadam, Y. Bazilevs, and A. L. Marsden, "Low entropy data mapping for sparse iterative linear solvers", *In Proceedings of XSEDE'13*, San Diego, CA, July 22-25, 2013.

25. A. Korobenko, M. Pigazzini, V. Singh, H. Kim, D. Allaire, K. Willcox, A.L. Marsden, and Y. Bazilevs, "Dynamic-Data-Driven Damage Prediction in Aerospace Composite Structures", *In proceedings of AIAA Aviation 2016*, Washington, DC.

26. M. Murugan, A. Ghoshal, F. Xu, M.-C. Hsu, Y. Bazilevs, and K. Kerner, "Articulating turbine rotor blade concept for improved off-design performance of gas turbine engines", *In proceedings of ASME SMASIS2016*, Stowe, VT, USA.

27. M.S. Pigazzini, Y. Bazilevs, D.J. Benson, H. Kim, and A. Ellison, "Isogeometric Analysis of Damage and Residual-Strength in Aerospace Composite Structures Subjected to Low-Velocity Impact", In proceedings of *ASC2016 - the Thirty-First Technical Conference on Composite Materials*, Williamsburg, VA, September 19-22, 2016.

28. Pigazzini M.S., Bazilevs Y., Kim H., and Ellison A.; "Isogeometric Analysis for the Prediction of Damage and Residual-Strength in Laminated Composite Structures", In Proceedings of *ASC 32nd Technical Conference*, West Lafayette, IN, October 23-25, 2017.

29. Pigazzini M.S., Korobenko A., and Bazilevs Y.; "Multiscale DDDAS Framework for Damage Prediction in Aerospace Composite Structures with Emphasis on Unmanned Aerial Vehicles", In Proceedings of *11th International Workshop on Structural Health Monitoring*, Stanford University, CA, September 12-14, 2017.

30. M. Murugan, A. Ghoshal, L. Bravo, F. Xu, M.C. Hsu, and Y. Bazilevs, "Articulating Axial-Flow Turbomachinery Rotor Blade For Enabling Variable Speed Gas Turbine Engine", *2018 Joint Propulsion Conference, AIAA Propulsion and Energy Forum*, (AIAA 2018-4522). https://doi.org/10.2514/6.2018-4522

31. M.R. Rajanna, F. Xu, M.-C. Hsu, Y. Bazilevs, M. Murugan, A. Ghoshal, and L.G. Bravo, "Optimizing Gas-Turbine Operation using Finite-Element CFD Modeling", *2018 Joint Propulsion Conference, AIAA Propulsion and Energy Forum, (AIAA 2018-4657)*. https://doi.org/10.2514/6.2018-4657.

32. Manoj R Rajanna, Emily L Johnson, David Codoni, Artem Korobenko, Yuri Bazilevs, Ning Liu, Jim Lua, Nam D Phan, Ming-Chen Hsu, "Finite Element Simulation and Validation for Aerospace Applications: Stabilized Methods, Weak Dirichlet Boundary Conditions, and Discontinuity Capturing for Compressible Flows", 2022 AIAA Sci Tech Forum, (AIAA 2022-1077). Published Online: 29 Dec 2021; https://doi.org/10.2514/6.2022-1077.

IV. Plenary, Semi-Plenary and Distinguished Lectures

"3D Simulation of Wind Turbine Rotors at Full Scale: Geometry Modeling, Aerodynamics and Fluid-Structure Interaction", **Plenary Lecture**, Maths & Air 2010, Zaragoza, Spain, June 16-18, 2010.

"Enabling Computational Technology for Offshore Wind Turbines", **Plenary Lecture** at the IVth International Conference on Computational Methods in Marine Engineering (MARINE2011), Lisbon, Portugal, Sept. 28-30, 2011.

"Fluid—Structure Interaction Modeling for Offshore Wind Turbines", **Plenary Lecture** at IXth Deep Sea Offshore Wind R&D Seminar (DeepWind2012), Trondheim, Norway, January 19-20, 2012.

"Fluid-Structure Interaction Simulation of Wind Turbines at Full Scale", **Plenary Lecture** at Young Investigators Conference (YIC2012), Aveiro, Portugal, April 24-27, 2012.

"Computational fluid-structure interaction: Blood pumps, surface ships, and wind turbines", **Semi-Plenary Lecture**, ACM 2013 – A Conference Celebrating the 70th Birthday of Thomas J.R. Hughes, San Diego, CA, February 24-27, 2013.

"Computational Fluid-Structure Interaction: From Blood Pumps to Wind Turbines", **Semi-Plenary Lecture** at 12th US National Congress on Computational Mechanics (USNCCM 2013), Raleigh, NC, July 22-25, 2013.

"Isogeometric Analysis and Fluid—Structure Interaction for Wind Turbines", **Warren Lecture**, Department of Civil and Environmental Engineering, University of Minnesota, February 28, 2014.

"FSI Modeling and Simulation of Onshore and Offshore Wind Turbines at Full Scale", **Plenary Lecture** at ParCFD 2014, Trondheim, Norway, May 20-22, 2014.

"Computational FSI: Methods Developed and Computations Performed", **Semi-Plenary Lecture** at FEF 2015, Taipei, Taiwan, March 16-18, 2015.

"Computational Fluid-Structure Interaction with Applications", **Plenary Lecture** at Coupled Problems 2015, Venice, Italy, May 18-20, 2015.

"IGA: Some New Fundamental Developments and Advanced Applications", **Plenary Lecture** at IGA 2015, Trondheim, Norway, June 1-3, 2015.

"Robust Solution Strategies for Fluid-Structure Interaction Problems with Applications", **Plenary Lecture** at Domain Decomposition 2015, Jeju Island, South Korea, July 6-10, 2015.

"Recent Advances in Isogeometric Analysis and Fluid-Structure Interaction", **Plenary Lecture** at 28th Nordic Seminar on Computational Mechanics, Tallinn, Estonia, October 22-23, 2015.

"Flexible Fluid-Structure Interaction Framework with Applications", **Semi-Plenary Lecture** at FEF 2017, Rome, Italy, April 5-7, 2017.

"Flexible FSI: From Wind Turbines to Air Blast", **Plenary Lecture** at International Conference on Advances in Computational Mechanics 2017, Phu Quoc Island, Vietnam, August 2-4, 2017.

"IGA as Enabling Technology for Engineering-Scale Simulations in Fluids, Solids, and FSI", **Plenary Lecture** at IGA 2017, Pavia, Italy, September 11-13, 2017.

"IGA of Solids, Structures, and FSI: From Early Results to Recent Developments", **Plenary Lecture** at Texas Applied Mathematics and Engineering Symposium (TAMES) 2017, Austin, TX, September 21-23, 2017.

"Recent Advances in IGA for FSI: Air-Blast FSI – Framework and Applications", **Semi-Plenary Lecture** at ECCM - ECFD 2018 - 6th European Conference on Computational Mechanics (Solids, Structures and Coupled Problems) & 7th European Conference on Computational Fluid Dynamics, Glasgow, Scotland, June 11-15, 2018.

"Isogeometric Methods for Extreme-Event Simulation: Air-Blast FSI – Framework and Applications", **Semi-Plenary Lecture** at WCCM 2018 – 13th World Congress on Computational Mechanics & 2nd Pan American Congress on Applied Mechanics, New York, New York, July 22-27, 2018.

"Isogeometric Methods for Extreme-Event Simulation: Air-Blast FSI – Framework and Applications", **Plenary Lecture** at NewMech 2018, Providence, RI, September 29, 2018.

"Impact of IGA in Structures and FSI: From Early Results to Recent Developments", **Plenary Lecture** at TWSM 2018 – Celebrating the 60th Birthday of Prof. K.M. Mathisen, Trondheim, Norway, December 12, 2018.

"IGA and RKPM: A Beautiful Friendship", **Plenary Lecture** at Meshfree Methods and Advances in CM – Workshop Celebrating JS Chen's 60th Birthday, Livermore, CA, March 10-12, 2019.

"Flexible FSI: From Wind to Air Blast", **Special Keynote Lecture** at EMI 2019, Caltech, June 18-21, 2019.

"Recent Advances in Coupled Isogeometric-Meshfree Methods for Extreme-Event Simulation", **Annual Lecture** at DCAMM 50th Anniversary Symposium, DTU, Copenhagen, Denmark, November 7, 2019.

"Isogeometric Analysis of Structures: Breakthroughs in Shell Modeling", **Lindbergh Lecture**, University of Wisconsin, October 8, 2020.

"Advanced and Practical FSI for Large-Scale Structural Systems", **Annual Objective Resilience Lecture**, Engineering Mechanics Institute of the ASCE, December 8, 2020.

"Recent Developments in Immersed IGA-Meshfree Methods for Extreme-Event Simulation", **Semi-Plenary Lecture**, COMPSAFE 2020, Kobe, Japan, December 8-11, 2020.

"Isogeometric Analysis of Solids and Structures: Breakthroughs in Shell Modeling", **Distinguished Public Lecture**, Department of Civil Engineering, University of Hong Kong, March 24, 2021.

"Breakthroughs in the Modeling of Shell Structures: IGA and Beyond", **Plenary Lecture**, VIGA 2021, Lyon, France, September 26-29, 2021.

"Breakthroughs in the Modeling of Shell Structures: From IGA to Peridynamics", **MAE Distinguished Lecture**, Department of Mechanical and Aerospace Engineering, The George Washington University, November 18, 2021.

"Thin Shells: From IGA to Peridynamics", **Semi-Plenary Lecture**, ECCOMAS 2022, Oslo, Norway, June 5-9, 2022.

"Stabilized and Multiscale Methods: Unifying CFD for Science and Engineering", **Semi-Plenary Lecture**, CFC 2023, Cannes, France, April 25-28, 2023.

"Computational Fluid-Structure Interaction: Methods, Breakthroughs and Applications", **Plenary Lecture**, ICAM 2023, Hong Kong, May 30 – June 3, 2023.

"Recent Advances and Breakthroughs in the Modeling and Simulation of Extreme Events", **Plenary Lecture**, EMI 2023, Atlanta, GA, June 6 – June 9, 2023.

"Recent Advances in IGA for Undersea Mechanics", **Plenary Lecture**, ACM 2023/CFSI 2023, Austin, TX, October 22-25, 2023.

"Isogeometric Analysis: Breakthroughs in Computational Mechanics of Shell Structures", **Plenary Lecture**, IMECE 2023, New Orleans, LA, October 29 – November 2, 2023.

"Taylor-Series Expansion for Meshfree Methods in Computational Solid Mechanics", **Plenary Lecture**, Particle Methods and Applications Conference, Santa Fe, NM, January 22 – 24, 2024.

"Isogeometric Shells with Emphasis on Modeling of Architected Structures", **Semi-Plenary Lecture**, 16th World Congress on Computational Mechanics (WCCM), Vancouver, Canada, July 21 – 26, 2024.

"Advanced and Practical Computational Fluid-Structure Interaction", **Distinguished Seminar**, Department of Mechanical Engineering, Purdue University, August 29, 2024.

V. Sponsored Research

Computational Modeling of Free-Surface Fluid-Object Interaction for Coastal hydraulic Applications; Sponsor: Army Research Office (ARO); Amount: $50,000; Dates: 07/01/2010-03/31/2011.

A Pipeline for Patient-Specific Cardiovascular Modeling: Imaging, Simulation and Visualization; Sponsor: UCSD Chancellor's Grant; Amount: $60,000; Dates: 06/01/2009-05/31/2010.

A Pipeline for Patient-Specific Cardiovascular Modeling: Imaging, Simulation and Visualization; Sponsor: UCSD Chancellor's Grant; Amount: $60,000; Dates: 06/01/2010-05/31/2011.

Los Alamos - UC San Diego Educational Collaboration - Phase VII – Computational Fluid-Structure Interaction Simulation of Wind Turbines; Sponsor: Los Alamos National Security, LLC; Amount: $40,295; Dates: 10/01/09 - 09/30/10.

Los Alamos - UC San Diego Educational Collaboration - Phase VIII – Computational Fluid-Structure Interaction Simulation of Wind Turbines; Sponsor: Los Alamos National Security, LLC; Amount: $53,725; Dates: 10/01/10 - 09/30/11.

Free-Surface Fluid-Object Interaction for the Large-Scale Computation of Ship Hydrodynamics Phenomena; Sponsor: Army Research Office (ARO); Amount: $244,447; Dates: 05/01/11 – 04/30/14.

CAREER: Fluid-Structure Interaction and High Performance Computing for Wind Energy Applications; Sponsor: National Science Foundation (NSF); Amount: $458,838; Dates: 05/01/11 – 04/30/16.

DDDAS: Computational Steering of Large-Scale Structural Systems Through Advanced Simulation, Optimization, and Structural Health Monitoring; Sponsor: Air Force Office of Scientific Research (AFOSR); Amount: $695,905; Dates: 01/01/12 – 12/31/15.

Los Alamos - UC San Diego Educational Collaboration - Phase IX – Isogeometric Methods for Lagrangian Hydrodynamics; Sponsor: Los Alamos National Security, LLC; Amount: $101,115; Dates: 09/01/11 – 10/31/12.

Applications of Quantum Computing in Aerospace Science and Engineering; Sponsor: Air Force Office of Scientific Research (AFOSR); Amount: $3,750,000 (Co-PI, my share $400,000); Dates: 09/01/11 – 08/31/16.

CDS&E: A Large-Scale Data Discovery Framework For Understanding Intermittent, Performance-Critical Phenomena In Simulations Of Off-Shore Wind Turbines; National Science Foundation (NSF); Amount: $500,000 (Co-PI, my share $170,000); Dates: 09/01/13 - 08/31/16.

Fluid—Structure Interaction Simulation of Gas Turbine Engines Using Isogeometric Analysis; Sponsor: Army Research Office (ARO); Amount: $440,000; Dates: 01/01/14 - 6/14/18.

Progressive Damage Modeling for Combined Impact and Compressive Residual Strength Prediction; Sponsor: NASA; Amount: $1,085,500 (Co-PI, my share $450,000): Dates: 10/01/15 – 9/30/19.

Multiscale DDDAS with Emphasis on Aerospace Structures and Application to Unmanned Aerial Vehicles; Sponsor: Air Force Office of Scientific Research (AFOSR); Amount: $736,000; Dates: 10/01/15 – 3/15/19.

Improving Particle-Grid Methods; Sponsor: Los Alamos National Security, LLC; Amount: $67,658; Dates: 4/1/17 – 12/1/17.

Improving Particle-Grid Methods; Sponsor: Los Alamos National Security, LLC; Amount: $75,000; Dates: 1/1/18 – 9/30/18.

LES and RANS Simulations of Estuarine Flows: Understanding and Parameterizing the Role of Langmuir Turbulence; National Science Foundation (NSF); Amount: $178,177; Dates: 08/15/18 - 07/31/2021.

Implementation of NURBS into Cartablanca; Sponsor: Los Alamos National Security, LLC; Amount: $45,000; Dates: 6/8/19 – 12/31/19.

Assessment of meshless methods for the open room closure problem; Sponsor: Sandia National Laboratories; Amount $150,000; Dates 7/23/2019 – 12/31/2019.

Immersed Method Research and Development; Sponsor: Sandia National Laboratories; Amount $150,000; Dates 11/19/2019 – 9/18/2019.

Development of Peridynamics Models for Ductile Fracture and Blast Loading; Sponsor: Sandia National Laboratories; Amount $295,900; Dates 1/1/2020 – 9/30/2021.

Predictive Modeling and Simulation for Next Generation Naval Undersea Vehicles and Platforms; Sponsor: Office of Naval Research; Amount $1,845,000; Dates 7/1/2021 – 6/30/2024.

Undersea Vehicle Science and Technologies: Multifunctional Structural Batteries, Computationally Designed Materials and Additive Manufacturing; Sponsor: Office of Naval Research; Amount $1,815,000 (Co-PI, my share $460,000); Dates 7/1/2021 – 6/30/2024.

Predictive Modeling and Simulation for Next Generation Naval Undersea Vehicles and Platforms; Sponsor: Office of Naval Research; Amount $2,788,000; Dates 6/1/2023 – 5/31/2026.

Undersea Vehicle Science and Technologies: Multifunctional Structural Batteries, Computationally Designed Materials and Additive Manufacturing; Sponsor: Office of Naval Research; Amount $2,762,558 (Co-PI, my share $200,000); Dates 6/1/2023 – 5/30/2027.

VI. Patents and Software Licensing

2. Linear Algebra Software Package licensed to Heartflow Inc. Spring 2013.

1. THREE-DIMENSIONAL GEOMETRIC DESIGN, ANALYSIS, AND OPTIMIZATION OF SHELL STRUCTURES. US Patent Application No. 20120310604. Filed on April 8, 2012.