

## Miroslav Krstic

Sr. Assoc. Vice Chancellor for Research  
Director, Cymer Center for Control Systems and Dynamics  
Daniel L. Alspach Endowed Chair in Dynamical Systems and Control

Distinguished Professor of Mechanical and Aerospace Engineering  
Distinguished Professor of Electrical and Computer Engineering

UNIVERSITY OF CALIFORNIA, SAN DIEGO

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Born: 1964

Family: Angela (1965), PhD in Computer Engineering  
Alexandra (1997), junior at Williams College, Massachusetts  
Victoria (2000), senior in high school

### EMPLOYMENT

2017- Senior Associate Vice Chancellor for Research (5-yr re-appointment), UC San Diego  
2016- Affiliate Distinguished Professor, Dept Electrical and Computer Engineering, UCSD  
2015- Distinguished Professor, UCSD  
2012-2017 Associate Vice Chancellor for Research, UC San Diego  
2009- Daniel L. Alspach Endowed Chair, UCSD  
2006-2009 Harold W. Sorenson Distinguished Faculty Fellow, UCSD  
2005- Founding Director, Cymer Center for Control Systems and Dynamics, UCSD  
2000- Full Professor, Dept Mechanical and Aerospace Engineering, UCSD  
1997-1999 Associate Professor, Dept. MAE, UC San Diego  
1995-1997 Assistant Professor, Dept. Mechanical Engineering and Inst. Systems Research, University of Maryland, College Park  
1989-1991 tenure-track lecturer for control systems in mechanical and mining engineering at University of Belgrade  
1983-1984 military service (compulsory)

### EDUCATION

PhD (1994), MS (1992) University of California, Santa Barbara, Dept. ECE  
BSEE (1989) University of Belgrade, Yugoslavia, Dept. EE, summa cum laude, 5-yr prog.

## **ADMINISTRATIVE LEADERSHIP (selected) at UC San Diego**

2012- *Senior Associate Vice Chancellor for Research*

UCSD's Office of Research Affairs administers about \$1.1 Billion per year in research funding (UCSD is ranked #5 nationwide in research revenue). I oversee:

- (1) Organized Research Units (oversee 18 large cross-campus research institutes and centers; total budget of up to \$120M/year; among directors: 8 members of NAS/NAE/NAM and one National Medal of Science recipient)
- (2) Research Personnel (oversee promotions of 150 "research faculty")
- (3) Postdoctoral Affairs (oversee 1,500 postdocs, largest in the UC System, including labor negotiations with United Auto Workers, which represents the postdoctdocs)
- (4) Research Development
  - a. Seed Funds programs: program design and selection of multidisciplinary faculty teams, postdocs, and students grantees; budget about \$3M/year
  - b. Research Initiatives: work with the leadership of federal agencies, nat'l labs, UC system, foundations, industry, and partner universities in creating funding opportunities
  - c. Team-building and matching negotiations for large grant applications
  - d. Limited Submissions (oversee four campus committees that select grant proposals to be submitted from UCSD: science & engineering, humanities and social sciences, life sciences, life sciences young investigators)
- (5) Advisory Council for Research Initiatives and Strategy (founder and chair of the campuswide council of associate deans for research)
- (6) Faculty Equity Advisor (diversity officer for ORA)
- (7) Core Facilities

2005- Founding Director, *Cymer Center for Control Systems and Dynamics* (total annual dues of approximately \$350K from four member companies: Cymer, General Atomics, L-3 Communications, Northrop Grumman)

2013-2018 Chair, External Affairs Committee, MAE Department

2012-13, 17-18 Chair, Vice Chair, Strategic Planning Committee, MAE Department

2000-2004 Vice Chair, Dept. MAE, UCSD

2000-2004 Chair, Undergraduate Affairs Committee, Dept. MAE, UCSD

## **Promotion of DIVERSITY**

2006 *UCSD Diversity Award*

2005, 07, 17 Led the hiring, in my department, of two female and one Hispanic male faculty members

1995-present Financially supported and academically advised 20 members of underrepresented groups as graduate students or postdocs (7 Hispanics, 3 African-Americans, 15 women in engineering)

2011-2013 Mentored UC President's Postdoctoral Fellow Dr. Scott Moura who has been hired at UC Berkeley as a faculty member

2012-2016 Faculty Equity Advisor and liaison between Office of Research Affairs and Office of Equity, Diversity, and Inclusion

2013-2014 Member of UCSD Task Force for Underrepresented Faculty

2014-2016 Member of Chancellor's Advisory Committee on the Status of Women

## AWARDS AND HONORS

### LIFETIME CAREER RECOGNITIONS

- 2017 *Rufus Oldenburger Medal* (for lifetime achievements in automatic control), American Society of Mechanical Engineers (ASME)
- 2017 *John Ragazzini Education Award*, American Automatic Control Council
- 2017 *Outstanding Contribution to Aerospace Research*, American Institute for Aeronautics and Astronautics (AIAA) San Diego Section
- 2016 *Henry Paynter Outstanding Researcher Award*, American Society of Mechanical Engineers (ASME)
- 2015 *Nyquist Lecture Prize*, American Society of Mechanical Engineers (ASME)
- 2015 Foreign Member, *Academy of Engineering of Serbia* (AINS)

### FELLOW ELECTIONS

- 2017 *Fellow of AAAS* (American Association for the Advancement of Science)
  - 2015 *Fellow of SIAM* (Society for Industrial and Applied Mathematics)
  - 2015 *Assoc. Fellow of AIAA* (American Institute of Aeronautics and Astronautics)
  - 2014 *Fellow of ASME* (American Society of Mechanical Engineers)
  - 2014 *Fellow of IET* (Institution of Engineering and Technology, UK)
  - 2008 *Fellow of IFAC* (International Federation of Automatic Control)
  - 2001 *Fellow of IEEE* (Institute of Electrical and Electronics Engineers)
- (the only Fellow of all these societies)

### EARLY CAREER AWARDS

- 1999 *Presidential Early Career Award for Scientists and Engineers* (PECASE)  
(at UCSD: first winner and the only one ever in Engineering)
- 1998 *Office of Naval Research Young Investigator Award*
- 1996 *National Science Foundation Career Award*  
(the only winner of all three in the controls field)

### PAPER AND BOOK PRIZES

- 2014 *Harold Chestnut Textbook Prize*, IFAC (International Federation for Automatic Control), triennial prize—the highest recognition for authoring a book in the field of control systems
- 2012 Semi-plenary paper award at *ASME Dynamic Systems and Control Conference*
- 1998 *George S. Axelby Outstanding Paper Award*, IEEE Trans. Automatic Control
- 1996 *O. Hugo Schuck Best Paper Award*, American Automatic Control Council

### OTHER MAJOR RECOGNITIONS

- 2016 *Recent Results on Nonlinear Delay Control Systems: In Honor of Miroslav Krstic*, Springer (a 407-page felicitation volume assembled by 45 leading researchers in the field of control of nonlinear systems with delays on the occasion of my 50<sup>th</sup> birthday)
- 2016 Invitation Fellow, *Japan Society for the Promotion of Science*
- 2016 Honorary Professor, Dalian Maritime University, China
- 2015 Honorary Professor, Donghua University, China
- 2015 Honorary Professor, Chongqing University, China
- 2015 Honorary Professor, Northeastern University, China
- 2013 Distinguished Visiting Fellow of the *Royal Academy of Engineering*, United Kingdom
- 2007 Russell Severance Springer Distinguished Visiting Professor, *UC Berkeley*
- 2006-10 *Distinguished Lecturer*, Control Systems Society
- 2005 UCSD Chancellor's Associates *Award for Excellence in Research in Sciences and Engineering*

(1st from Engineering in 16 years; 2004 winner Roger Tsien, Nobel Prize in Chemistry)

#### STUDENT PERIOD—DISSERTATION AND PAPER PRIZES

- 1995 *Lancaster Best Dissertation Award* (campus-wide), University of California, Santa Barbara  
1995 Student Best Paper Award, *American Control Conference*  
1993 Student Best Paper Award, *IEEE Conference on Decision and Control*  
(the only winner in the control field's history of the student best paper award at both of the flagship conferences, CDC and ACC)

#### SERVICE AWARDS

- 2006 UC San Diego Diversity Award

#### REVIEWER AWARDS

- 2006 Outstanding Reviewer, *IEEE Transactions on Automatic Control*  
2008 Excellent Reviewer, *AIAA Journal of Guidance, Control, and Dynamics*

#### AWARDS TO MY STUDENTS

- 2014 *Chancellor's Dissertation Medal* in Engineering (among 150 PhDs granted in 2013), UCSD, Nikolaos Bekiaris-Liberis  
2014 *Best European Dissertation in Control* of Complex and Heterogeneous Systems, European Embedded Control Institute (EECI), Delphine Bresch-Pietri  
2013 *Best University-wide Dissertation Award, Paris-Tech* (includes 12 most prestigious and oldest technical and business universities in the Paris region such as Ecole des Mines, Ecole Polytechnique, ENSAE, etc.), Delphine Bresch-Pietri  
2003 *Exon Mobil Best Dissertation Award, Norwegian University of Science and Technology, Ole Morten Aamo* (for a thesis that I supervised and Aamo and I jointly published as a book *Flow Control by Feedback* with Springer)

#### **Selected EDITORIAL ACTIVITIES**

##### BOOK SERIES

- 2010- Springer series *Communications and Control Engineering*, Series Editor  
2011- Springer Briefs series *Control, Robotics, and Automation*, Series Co-Editor  
2011- Birkhauser series *Foundations of Systems and Control*, Member, Advisory Board  
2012- Springer *Encyclopedia of Systems and Control*, Section Editor

##### JOURNALS (SELECTED):

- 2018- *Systems & Control Letters*, Editor-in-Chief designee  
2006- *Automatica*, Editor for Adaptive and Distributed Parameter Systems  
2009-2018 *IEEE Transactions on Automatic Control*, Senior Editor  
2008 Associate Editor at Large, *IEEE Transactions on Automatic Control*  
2009- *ESAIM: Control, Optimisation, and Calculus of Variations*, Associate Editor  
2012- *Foundations and Trends in Systems and Control*, Member of Editorial Board  
1998-2003 *Systems & Control Letters*, Associate Editor  
1995-2013 *Int. J. Adaptive Control and Signal Processing*, Editor for Adaptive Control until 2012, Distinguished Advisor since 2012  
1997-2000 *IEEE Transactions on Automatic Control*, Associate Editor

### **IEEE Control Systems Society SERVICE (non-editorial)**

2018	Member, <i>Long-Range Planning Committee</i> , CSS
2018, 2000-2004	Member, <i>Board of Governors</i> , CSS
2012	Member, <i>Nominating Committee</i> , CSS
2008-2010	Chair, <i>IEEE Fellow Eval. Committee</i> , CSS
2005-2007	Member, <i>IEEE Fellow Eval. Committee</i> , CSS
2002-2004	<i>Vice President for Technical Activities</i> , CSS
1997-2000	Chair, <i>CDC Student Best Paper Award Committee</i>

### **American Automatic Control Council SERVICE**

2018	Chair, John Ragazzini Education Award selection committee
2012-2013	Member, Richard Bellman Control Heritage Award selection committee

### **ASME Dynamic Systems and Control Division SERVICE**

2013	Program Chair, <i>ASME Dynamic Systems and Control Conference</i> , Stanford University, CA
2012-2016	Member, <i>Honors and Awards Committee</i> (chooses recipients of Oldenburger Medal, Takahashi Education Prize, Paynter Researcher Award, Draper Innovation Award, Rabins Leadership Award, DSCC Young Investigator Award, and Kalman Best Paper Award)

### **Other Major CONFERENCE ORGANIZATION**

2008	General Co-Chair, <i>20<sup>th</sup> International Conference on Magnetically Levitated Systems and Linear Drives</i> , San Diego, CA
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### **VISITING POSITIONS**

2013	Distinguished Visiting Fellow, Royal Academy of Engineering, UK
2010	Professor of Mathematics, Université Diderot – Paris 6, France
2007	Russell Severance Springer Distinguished Visiting Professor, UC Berkeley

### **KEYNOTE LECTURES (33)**

2018	<i>Mathematical Theory of Systems and Control</i> , Hong Kong
2017	<i>Asian Control Conference</i> , Brisbane, Australia
2017	ASME Oldenburger Medal Lecture, <i>Dynamic Systems and Control Conference</i>
2017	<i>IEEE International Conference on Control and Automation</i> , Ohrid, Macedonia
2016	<i>IEEE Intl. Conf. on the Science of Electrical Engineering</i> , Eilat, Israel
2016	<i>IcETRAN</i> , Zlatibor, Serbia
2015	ASME Nyquist Lecture, <i>Dynamic Systems and Control Conference</i> , Columbus, OH
2015	<i>IFAC Workshop on Adv. Control and Nav. for Autonomous Aerospace Vehicles</i> , Sevilla
2014	<i>IEEE Conference on Decision and Control</i> , Los Angeles
2014	<i>World Congress on Intelligent Control and Automation</i> , Shenyang, China
2014	<i>IcETRAN</i> , Vrnjacka Banja, Serbia
2013	<i>Congreso Nacional de Control Automático</i> , Mexico
2013	<i>IFAC Workshop on Control of Systems Governed by Partial Differential Equations</i> , Paris
2013	<i>IFAC Nonlinear Control Systems Symposium (NOLCOS)</i> , Toulouse, France
2013	<i>IFAC Workshop on Adaptation and Learning in Control and Signal Proc.</i> , Caen, France
2013	<i>IEEE Workshop on Open Problems and Challenges in Automotive Control</i> , Washington DC
2012	<i>IEEE Conference on Industrial Electronics and Applications</i> , Singapore
2012	<i>IEEE International Conference on Mechatronics and Automation</i> , Chengdu, China

- 2011 Diamond Anniversary Distinguished Lecturer, *Coordinate Science Laboratory, U. Illinois*
- 2010 *Intl. Conf. on Control, Automation, Robotics and Vision*, Singapore
- 2010 *Turkish Control Conference*, Gebze, Turkey
- 2010 *IEEE Multi-Conf. on Systems and Control*, Yokohama, Japan
- 2010 *IFAC Symposium on Automatic Control in Aerospace*, Nara, Japan
- 2010 *IFAC Workshop on Time-Delay Systems*, Prague, Czech Republic
- 2009 *ASME Dynamic Systems and Control Conference*, Hollywood, CA
- 2008 *Mediterranean Control Conference*, Ajaccio, Corsica, France
- 2008 *Conf. Control of Physical Systems and PDEs*, Paris, France
- 2008 *Chinese Control and Decision Conference*, Yantai, China
- 2007 *IFAC Symp. Adaptive Sys. in Control & Sig. Proc.*, St. Petersburg, Russia
- 2007 *IFAC NOLCOS Symposium*, Pretoria, South Africa
- 2007 *IEEE Adv. Process Control Workshop*, Vancouver, Canada
- 2006 *Chinese Control Conference*, Harbin, China

**Selected DISTINGUISHED LECTURES (from > 150 seminars)**

KEYNOTE TO INSTITUTE 60-YEAR ANNIVERSARY

- 2011 Diamond Anniversary Distinguished Lecturer, *Coordinated Science Laboratory, University of Illinois, Urbana-Champaign*

LECTURE TOURS

- 2013 Lecture tour of UK (6 universities, 2 lectures each), sponsor *Royal Academy of Engineering*
- 2013 Lecture tour of southwestern France (several universities and institutes), sponsors *Institute of Mathematics* and *Institute of Fluid Mechanics* of Toulouse
- 2006-2010 Distinguished Lecturer, *IEEE Control Systems Society*
- 2003 *Southwest Mechanics Lecture Tour*, Distinguished Lecturer (5 universities)

INDIVIDUAL LECTURES AND COURSES

- 2017 “Leaders in Engineering,” *Rensselaer Polytechnic Institute*
- 2017 “Kwan Chao-Chi Distinguished Lecture,” *Chinese Academy of Sciences*
- 2013-2016 Distinguished Lecturer, *International Graduate School on Control*, Belgrade, Serbia
- 2012 Distinguished Lecturer, *International Summer School on Automatic Control*, Grenoble, France
- 2012 Distinguished Lecturer, *Dutch Institute of Systems and Control (DISC)*, Summer School on “Optimization and Control”
- 2012 Distinguished Lecturer, *International Graduate School on Control*, Paris, France
- 2009 Eastern Canada Lecture Tour (5 universities), *IEEE Control Systems Society*
- 2008 Nokia Distinguished Lecturer, CITRIS, *UC Berkeley*
- 2007 Springer Distinguished Lecturer, Dept. Mechanical Eng., *UC Berkeley*
- 2007 Distinguished Lecturer, Dept. Mechanical Eng., *Iowa State University*
- 2007 Distinguished Lecturer, Dept. ECE, *Ohio State University*
- 2007 Distinguished Lecturer, *Dutch Institute of Systems and Control (DISC)*, Summer School on “Nonlinear Control”

FELICITATION TALKS

- 2016 Basar Fest, IEEE CDC, Las Vegas
- 2016 Coron Fest, UPMC, Sorbonne Universités, Paris
- 2015 Praly Fest, Ecole des Mines, Paris
- 2012 Spong Fest, University of Texas, Dallas
- 2012 Sontag Fest, Rutgers University
- 2012 Bastin Fest, Université Catholique de Louvain, Belgium

2010 Helton Fest, University of California, San Diego  
2009 Kokotovic Fest, University of California, Santa Barbara

## TEACHING

*Nonlinear Systems* (MAE 281A), 98-16  
*Nonlinear Control* (MAE 281B), 98-03  
*Adaptive Control* (MAE 282), 99-10  
*Control of Distributed Parameter Systems* (MAE 287), 99-11  
*Robust and Multivariable Control* (MAE 284), 04  
*Linear Control* (MAE 143B), Fall 98-07  
*Signals and Systems* (MAE 143A), 05-10

**PhD students graduated: 26**

## STUDENTS/POSTDOCS WITH FACULTY POSITIONS:

1. O. M. Aamo (Norwegian University of Science and Technology)
2. K. Ariyur (Purdue University)
3. A. Balogh (University of Texas)
4. H. Basturk (Bogazici University, Turkey)
5. D. Bresch-Pietri (MINES ParisTech, France)
6. F. Bribiesca Argomedo (Institut National des Sciences Applique, Lyon, France)
7. X. Cai (Zhejiang Normal University, China)
8. E. Cerpa (Universidad Técnica Federico Santa María, Chile)
9. J.-Y. Choi (Pohang University, Korea)
10. F. Di Meglio (MINES ParisTech, France)
11. M. Diagne (Rensselaer Polytechnic Institute)
12. F. Ikhouane (Universitat Politècnica de Catalunya, Spain)
13. W.-J. Liu (University of Southern Arkansas)
14. S.-J. Liu (Sichuan University, China)
15. S. Moura (UC Berkeley)
16. J. Qi (Donghua University, China)
17. B.-B. Ren (Texas Tech University)
18. T. Roux Oliveira (University of Rio de Janeiro, Brazil)
19. E. Schuster (Lehigh University)
20. R. Vazquez (University of Seville, Spain)
21. H.-H. Wang (Tatung Institute of Technology, Taiwan)
22. C.-C. Yuan (Naval Academy of Taiwan)
23. J.-M. Wang (Beijing Institute of Technology)

## RESEARCH FUNDING

Career total: approx. \$15M

(This figure includes only my single-PI grants and my personal share on multi-investigator grants.)

### Funding sources:

#### Government:

1. Air Force Office of Scientific Rsch.
2. Army Research Office
3. ARPA-E
4. California Energy Commission
5. Department of Energy
6. Los Alamos National Laboratory
7. NASA
8. National Science Foundation
9. Office of Naval Research

#### Industry:

10. Bosch
11. Cymer
12. Ford
13. General Atomics
14. L-3 Communications
15. Northrop Grumman
16. United Technologies

### All Publications (728):

12 books, 309 journal papers, 29 chapters, 376 refereed conference papers, 2 patents

### Books Authored

- [B1] M. Krstic, I. Kanellakopoulos, and P. V. Kokotovic, *Nonlinear and Adaptive Control Design*, Wiley, 1995.
- [B2] M. Krstic and H. Deng, *Stabilization of Nonlinear Uncertain Systems*, Springer, 1998.
- [B3] O. M. Aamo and M. Krstic, *Flow Control by Feedback*, Springer, 2002.
- [B4] K. Ariyur and M. Krstic, *Real Time Optimization by Extremum Seeking Control*, Wiley, 2003.
- [B5] M. Krstic and A. Smyshlyayev, *Boundary Control of PDEs: A Course on Backstepping Designs*, SIAM, 2008.
- [B6] R. Vazquez and M. Krstic, *Control of Turbulent and Magnetohydrodynamic Channel Flows*, Birkhauser, 2007.
- [B7] M. Krstic, *Delay Compensation for Nonlinear, Adaptive, and PDE Systems*, Birkhauser, 2010.
- [B8] A. Smyshlyayev and M. Krstic, *Adaptive Control of Parabolic PDEs*, Princeton University Press, 2010.
- [B9] S.-J. Liu and M. Krstic, *Stochastic Averaging and Stochastic Extremum Seeking*, Springer, 2012.
- [B10] N. Bekiaris-Liberis and M. Krstic, *Nonlinear Control Under Non-constant Delays*, SIAM, 2013.
- [B11] I. Karafyllis and M. Krstic, *Predictor Feedbacks for Delay Systems: Implementations and Approximations*, Springer, 2017.
- [B12] A. Scheinker and M. Krstic, *Model-Free Stabilization by Extremum Seeking*, Springer, 2017.

### CITATIONS (as of January 2018)

ISI (excludes books): h = 54  
Scopus (excludes books): h = 63  
Google Scholar (includes books): h = 80 (total ~33,000)

Citation ranking on Google Scholar in relevant categories:

- Control Systems: 2<sup>nd</sup>



## I. Journal Papers

1. M. Krstic, "Algorithms for calculating flow and pressure distribution in gas networks," *Nafta*, vol. 41, pp. 265--274, 1990.
2. M. Krstic, "General gas network design for a desired stationary flow/pressure distribution," *Nafta*, vol. 41, pp. 493--498, 1990.
3. M. Krstic, I. Kanellakopoulos, and P. V. Kokotovic, "[Adaptive nonlinear control without overparametrization.](#)" *Systems Control Letters*, vol. 19, pp. 177--185, 1992.
4. M. Krstic, P. V. Kokotovic and I. Kanellakopoulos, "[Transient performance improvement with a new class of adaptive controllers.](#)" *Systems Control Letters*, vol. 21, pp. 451--461, 1993.
5. M. Krstic, I. Kanellakopoulos, and P. V. Kokotovic, "[Nonlinear design of adaptive controllers for linear systems.](#)" *IEEE Transactions on Automatic Control*, vol. 39, pp. 738--752, 1994.
6. M. Krstic and P. V. Kokotovic, "Observer-based schemes for adaptive nonlinear state-feedback control," *International Journal of Control*, vol. 59, pp. 1373--1381, 1994.
7. M. Krstic, I. Kanellakopoulos and P. V. Kokotovic, "[Passivity and parametric robustness of a new class of adaptive systems.](#)" *Automatica*, vol. 30, pp. 1703--1716, 1994.
8. M. Krstic and P. V. Kokotovic, "[Adaptive nonlinear design with controller-identifier separation and swapping.](#)" *IEEE Transactions on Automatic Control*, vol. 40, pp. 426--441, 1995.
9. M. Krstic and P. V. Kokotovic, "[Control Lyapunov functions for adaptive nonlinear stabilization.](#)" *Systems Control Letters*, vol. 26, pp. 17--23, 1995.
10. M. Krstic and P. V. Kokotovic, "[Adaptive nonlinear output-feedback schemes with Marino-Tomei controller.](#)" *IEEE Transactions on Automatic Control*, vol. 41, pp. 274-80, 1996.
11. M. Krstic and P. V. Kokotovic, "[Modular approach to adaptive nonlinear stabilization.](#)" *Automatica*, vol. 32, pp. 625--629, 1996.
12. M. Krstic, J. Sun and P. V. Kokotovic, "[Robust control of nonlinear systems with input unmodeled dynamics.](#)" *IEEE Transactions on Automatic Control*, vol. 41, pp. 913--920, 1996.
13. M. Krstic, "[Invariant manifolds and asymptotic properties of adaptive nonlinear stabilizers.](#)" *IEEE Transactions on Automatic Control*, vol. 41, pp. 817--829, 1996.
14. M. M. Monahemi and M. Krstic, "[Control of wing rock motion using adaptive feedback linearization.](#)" *Journal of Guidance, Control, and Dynamics*, vol 19, pp. 905--912, 1996.
15. Z.-H. Li and M. Krstic, "[Maximizing regions of attraction via backstepping and CLFs with singularities.](#)" *Systems and Control Letters*, vol. 30, pp. 195-207, 1997.
16. Z. H. Li and M. Krstic, "[Optimal design of adaptive tracking controllers for nonlinear systems.](#)" *Automatica*, vol. 33, pp. 1459-1473, 1997.
17. H. Deng and M. Krstic, "[Stochastic nonlinear stabilization---Part I: A backstepping design.](#)" *Systems and Control Letters*, vol. 32, pp. 143-150, 1997.
18. H. Deng and M. Krstic, "[Stochastic nonlinear stabilization---Part II: Inverse optimality.](#)" *Systems and Control Letters*, vol. 32, pp. 151-159, 1997.
19. M. Krstic and Z. H. Li, "[Inverse optimal design of input-to-state stabilizing nonlinear controllers.](#)" *IEEE Transactions on Automatic Control*, vol. 43, pp. 336-351, 1998.
20. F. Ikhouane and M. Krstic, "[Robustness of the tuning functions adaptive backstepping design for linear systems.](#)" *IEEE Transactions on Automatic Control*, vol. 43, pp. 431-437, 1998.
21. Z.-H. Li and M. Krstic, "[Geometric/asymptotic properties of adaptive nonlinear systems with partial excitation.](#)" *IEEE Transactions on Automatic Control*, vol. 43, pp. 419-425, 1998.
22. F. Ikhouane and M. Krstic, "[Adaptive backstepping with parameter projection: robustness and asymptotic performance.](#)" *Automatica*, vol. 34, pp. 429-435, 1998.
23. M. Krstic, D. Fontaine, P. V. Kokotovic, and J. Paduano, "[Useful nonlinearities and global bifurcation control of jet engine surge and stall.](#)" *IEEE Transactions on Automatic Control*, vol.43, p.1739-45, 1998.

24. R. A. Freeman, M. Krstic, and P. V. Kokotovic, "[Robustness of adaptive nonlinear control to bounded uncertainties.](#)" *Automatica*, vol.34, p.1227-30, 1998.
25. H. Deng and M. Krstic, "[Output-feedback stochastic nonlinear stabilization.](#)" *IEEE Transactions on Automatic Control*, vol.44, p.328-33, 1999.
26. M. Krstic and P. Tsiotras, "[Inverse optimality results for the attitude motion of a rigid spacecraft.](#)" *IEEE Transactions on Automatic Control*, vol.44, p.1042-9, 1999.
27. M. Krstic, A. S. Krupadanam, and C. A. Jacobson, "[Self-tuning control of a nonlinear model of combustion instabilities.](#)" *IEEE Transactions on Control Systems Technology*, vol.7, p.424-436, 1999.
28. M. Krstic, "[On global stabilization of Burgers' equation by boundary control.](#)" *Systems and Control Letters*, vol.37, p.123-142, 1999.
29. H.-H. Wang, M. Krstic, and G. Bastin, "[Optimizing bioreactors by extremum seeking.](#)" *International Journal of Adaptive Control and Signal Processing*, vol. 13, pp. 651-669, 1999.
30. D. Boskovic and M. Krstic, "[Global attitude/position regulation for underwater vehicles.](#)" *International Journal of Systems Science*, vol. 30, pp. 939-946, 1999.
31. K.B.Ariyur and M. Krstic, "[Feedback attenuation and adaptive cancellation of blade-vortex interaction noise on a helicopter blade element.](#)" *IEEE Transactions on Control Systems Technology*, vol. 7, pp. 424-426, 1999.
32. H.-H. Wang, S. Yeung, and M. Krstic, "[Experimental application of extremum seeking on an axial-flow compressor.](#)" *IEEE Transactions on Control Systems Technology*, vol. 8, pp. 300-309, 1999.
33. H. Deng and M. Krstic, "[Output-feedback stabilization of stochastic nonlinear systems driven by noise of unknown covariance.](#)" *Systems and Control Letters*, vol. 39, pp. 173-182, 2000.
34. H.-H. Wang and M. Krstic, "[Extremum seeking for limit cycle minimization.](#)" *IEEE Transactions on Automatic Control*, vol. 45, pp. 2432-2436, 2000.
35. M. Krstic and H. H. Wang, "[Stability of extremum seeking feedback for general dynamic systems.](#)" *Automatica*, vol. 36, pp. 595-601, 2000.
36. W.-J. Liu and M. Krstic, "[Stability enhancement by boundary control in the Kuramoto-Sivashinsky equation.](#)" *Nonlinear Analysis*, vol. 43, pp. 485-583, 2000.
37. M. Krstic, "[Performance improvement and limitations in extremum seeking control.](#)" *Systems & Control Letters*, vol. 39, pp. 313-326, 2000.
38. W.-J. Liu and M. Krstic, "[Strong stabilization of the system of linear elasticity by a Dirichlet boundary feedback.](#)" *IMA Journal of Applied Mathematics*, vol. 65, pp. 109-121, 2000.
39. H.-H. Wang, M. Krstic, and M. Larsen, "[Control of deep hysteresis aeroengine compressors.](#)" *Journal of Dynamic Systems, Measurement, and Control*, vol. 122, pp. 140-152, 2000.
40. A. Balogh and M. Krstic, "[Burgers' equation with nonlinear boundary feedback:  \$H^1\$  stability, well posedness, and simulation.](#)" *Mathematical Problems in Engineering*, vol. 6, pp. 189-200, 2000.
41. A. Balogh and M. Krstic, "[Boundary control of the Korteweg--de Vries--Burgers equation: Further results on stabilization and numerical demonstration.](#)" *IEEE Transactions on Automatic Control*, vol. 45, pp. 1739-1745, 2000.
42. W.-J. Liu and M. Krstic, "[Backstepping boundary control of Burgers' equation with actuator dynamics.](#)" *Systems & Control Letters*, vol. 41, pp. 291-303, 2000.
43. H. Ito and M. Krstic, "[Recursive scaling design for robust global nonlinear stabilization via output feedback.](#)" *International Journal of Robust and Nonlinear Control*, vol. 10, pp. 821-48, 2000.
44. S. Murugappan, E. Gutmark, S. Acharya, and M. Krstic, "Extremum seeking adaptive controller of swirl-stabilized spray combustion," *Proceedings of the Combustion Institute*, vol. 28, 2000.
45. H. Deng, M. Krstic, and R. Williams, "[Stabilization of stochastic nonlinear systems driven by noise of unknown covariance.](#)" *IEEE Transactions on Automatic Control*, vol. 46, pp. 1237-1253, 2001.

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## II(a) Books

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#### **IV. Patents**

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