

Prof. Dr. Frank Allgöwer

Universität Stuttgart
Fakultät für Konstruktions-, Produktions- und
Fahrzeugtechnik (Maschinenbau)
Institute for Systems Theory and Automatic Control

Pfaffenwaldring 9
70569 Stuttgart

Germany

Email: frank.allgower@ist.uni-stuttgart.de

Web: www.ist.uni-stuttgart.de/institut/mitarbeiter/Allgoewer

Phone: +49 711 685 67733

Born on May 23, 1962 in Heilbronn-Sontheim (Germany)



Scientific Career

- 2010 - 2011 Visiting Professor, University of Newcastle, Australia
- 2003 - 2004 Visiting Professor, UC Santa Barbara, USA
- Since 1999 Professor and Director of the Institute for Systems Theory and Automatic Control
- 1996 - 1999 Assistant Professor for Nonlinear Systems, Department of Electrical Engineering, ETH Zürich, Switzerland
- 1996 Dr.-Ing. in Control Engineering, Universität Stuttgart
- 1995 - 1996 Visiting Research Associate at the DuPont Company, Wilmington, DE, USA
- 1991 - 1992 Visiting Research Associate, California Institute of Technology, USA
- 1988 - 1995 Research and Teaching Assistant at the Institute for System Dynamics and Automatic Control, Universität Stuttgart
- 1981 - 1987 Study of Engineering Cybernetics (Technische Kybernetik) and Applied Mathematics at the Universität Stuttgart and UC Los Angeles, respectively.

Selected Scholarships, Awards and Faculty Functions

- 2017 - 2020 Elected for the Presidency of the International Federation of Automatic Control (IFAC) from 2017-2020
- 2015 Distinguished Member Award, IEEE Control Systems Society
- Since 2014 Head of the Stuttgart Research Centre for Systems Biology SRCBS
- 2013 - 2015 Vice President for Technical Activities of the IEEE Control Systems Society
- Since 2012 Vice President of the DFG
- 2011 Outstanding Service Award, International Federation of Automatic Control (IFAC)
- Since 2009 Head of the Graduate School Simulation Technology of the Stuttgart Research Center for Simulation Technology.
- 2007 Landeslehrpreis (Teaching Award) of the State Baden-Württemberg
- Since 2007 Member of the Executive Board of Directors of the Cluster of Excellence in Simulation Technology

2006	IEEE Distinguished Lecturer
Since 2006	“Vertrauensdozent” of the Studienstiftung des deutschen Volkes
2006	Fellow, International Federation of Automatic Control (IFAC)
2004	Gottfried-Wilhelm-Leibniz der Deutschen Forschungsgemeinschaft
2003 - 2012	Member of the “Fachkollegium Systemtechnik” of the DFG
2002	NaT-Working Preis der Robert Bosch Stiftung
1999 - 2004	Deputy speaker, SFB 412, Universität Stuttgart
Since 1999	Dean of studies for “Technische Kybernetik”, Universität Stuttgart

Ten most important publications

* Publications jointly together with UoA-researchers involved within this IRTG

§ Publications jointly together with USTUTT-researchers involved within this IRTG

A) Published in publication outlets with scientific quality assurance and book publications:

1. Müller, M. A.; Angeli, D.; Allgöwer, F.: On necessity and robustness of dissipativity in economic model predictive control. IEEE Trans. Automat. Control, 60(6), p. 1671–1676, 2015.
2. Brunner, F. D.; Lazar, M.; Allgöwer, F.: Stabilizing model predictive control: On the enlargement of the terminal set. Int. J. Robust and Nonlinear Control, 25(15), p. 2646–2670, 2015.
3. Löhning, M.; Reble, M.; Hasenauer, J.; Yu, S.; Allgöwer, F.: Model predictive control using reduced order models: Guaranteed stability for constrained linear systems, J. Proc. Contr., 24(11), p. 1647-1659, 2014.
4. Yu, S.; Reble, M.; Chen, H.; Allgöwer, F.: Inherent robustness properties of quasi-infinite horizon nonlinear model predictive control, Automatica, 50(9), p. 2269-2280, 2014.
5. Worthmann, K.; Reble, M.; Grüne, L.; Allgöwer, F.: The Role of Sampling for Stability and Performance in Unconstrained Nonlinear Model Predictive Control, SIAM J. Control Optim., 52(1), p. 581-605, 2014.
6. Bayer, F.; Müller, M.A.; Allgöwer, F.: Tube-based Robust Economic Model Predictive Control, J. Proc. Contr., 24(8), p. 1237-1246, 2014.
7. Reble, M.; Quevedo, D.E.; Allgöwer, F.: Control over Erasure Channels: Stochastic Stability and Performance of Packetized Unconstrained Model Predictive Control. Int. J. Robust and Nonlinear Control, 23(10), p. 1151-1167, 2013.
8. Reble, M., Allgöwer, F.: Unconstrained Model Predictive Control and Suboptimality Estimates for Nonlinear Continuous-Time Systems, Automatica, 48(8), p. 1812-1817, 2012.
9. Müller, M. A., Martius, P., Allgöwer, F.: Model predictive control of switched nonlinear systems under average dwell-time, J. Proc. Contr., 22(9), p. 1702-1710, 2012.
10. Mayne, D. Q., Raković, S. V., Findeisen, R., Allgöwer, F.: Robust output feed-back model predictive control of constrained linear systems: Time varying case, Automatica, 45(9), p. 2082-2087, 2009.

B) Other publications

C) Patents

Supervised graduate students since graduation year 2011

No.	Last Name, First Name	Degree	Title of the dissertation	Duration of thesis
1	Böhm, Christoph M.	Dr.-Ing.	Predictive Control using Semi-definite Programming – Efficient Approaches for Periodic Systems und Lur'e Systems	2006 - 2011
2	Yu, Shuyou	Dr.-Ing.	Robust Model Predictive Control of Constrained Systems	2008 - 2011
3	Blind, Rainer	Dr.-Ing.	Optimization of the Communication System for Networked Control Systems	2007 - 2013
4	Bürger, Mathias	Dr.-Ing.	Duality and Approximation Methods for Cooperative Optimization and Control	2008 - 2013
5	Hasenauer, Jan	Dr.-Ing.	Modeling and parameter estimation for heterogeneous cell populations	2009 - 2013
6	Reble, Marcus	Dr.-Ing.	Model Predictive Control for Nonlinear Continuous-Time Systems with and without Time-Delays	2008 - 2013
7	Schmidt, Gerd Simon	Dr.-Ing.	Synchronization of oscillators and global output regulation for rigid body systems	2007 - 2014
8	Schuler, Simone	Dr.-Ing.	Controller and Network Design Exploiting System Structure	2007 - 2014
9	Müller, Matthias	Dr.-Ing.	Distributed and economic model predictive control: beyond setpoint stabilization	2011 - 2015
10	Seyboth, Georg	Dr.-Ing.	On distributed and cooperative control design for networks of dynamical systems	2011 - 2015
11	Schittler, Daniella	Dr.-Ing.	A mathematical modeling framework to simulate and analyze cell type transitions	2011 - 2015
12	Breindl, Christian	Dr.-Ing.	Identification, analysis and control of discrete and continuous models of gene regulation networks	2010 - 2015
13	Zeng, Shen-Shen	Dr.-Ing.	Essential observability of dynamical systems	2013 - 2016
14	Montenbruck, Maximilian	Dr.-Ing.	Constructive approaches to submanifold stabilization	2013 - 2016

Most important research grants since 2011

No.	Research Project	Funding Period	Name(s) of the principal investigator(s)	Funding source and reference number
1	TRAIL resistance in a 3D tumour model	5/2014 – 4/2017	Allgöwer, F.	DFG, ExC 310 PN 4-4
2	Multiskalen-Modellierung der Wirkung zielgerichteter Proteintherapeutika: Auf dem Weg zur prädikativen Krebstherapie	01/2013 – 12/2015	Allgöwer, F.	BMBF, TP 6/1
3	A Geometric Approach to Distributed Control of Heterogeneous Networked Systems	11/2013 – 10/2016	Allgöwer, F.	DFG, ExC 310 PN 3-1
4	Fairness und Effizienz in verteilter ökonomischer modellprädiktiver Regelung	07/2013 – 10/2016	Allgöwer, F.	DFG, AL316/11-1, AOBJ 604569
5	Robuste nichtlineare modellprädiktive Regelung basierend auf konvexer Optimierung	09/2011 – 08/2014	Allgöwer, F.	DFG, AL 316/9-1, AOBJ 589691
6	Entwicklung dezentraler asynchroner prädiktiver Regelungsverfahren für digital vernetzte Systeme	07/2010 – 06/2013	Allgöwer, F. Findeisen, R. Grüne, L.	DFG, AL 316/6-2, AOBJ 578949
7	Entwurf von kooperativen, digital vernetzten Regelungen für konkurrierende Systeme	07/2010 – 06/2013	Allgöwer, F.	DFG, AL 316/7-2, AOBJ 578963
8	Robust and stochastic economic model predictive control	10/2015-03/2017	Allgöwer, F. Müller, M.	DFG, AL316/12-1 AOBJ 623945
9	Integrated Controller Design Methods and Communication Services for Networked Control Systems	10/2015-09/2018	Allgöwer, F. Rothermel, K. Dürr, F.	DFG, AL316/13-1 AOBJ 624390
10	Control Theory of Ensembles of Dynamical Systems	12/2015-11/2018	Allgöwer, F.	DFG, AL316/14-1 AOBJ 626824
11	System Mensch: vom digitalen Modell zur Anwendung	10/2016 – 09/2019	Allgöwer, F. Rosenstiel, W.	MWK Az.7533-30-20/1