

# Curriculum Vitae

## Prof. Dr.-Ing. Paul Uwe Thamsen

Department of Fluid System Dynamics  
Institute of Fluid Mechanics and Acoustics  
Technical University of Berlin  
Straße des 17. Juni 135, 10623 Berlin, Germany

**email: paul-uwe.thamsen@tu-berlin.de**



**Date and place of birth:** March 6<sup>th</sup>, 1960 in Ockholm, Germany

### Scientific education

- Diploma degree in mechanical engineering, 1987, University of Braunschweig
- Doctoral degree (Dr.-Ing.), 1992, University of Braunschweig

### Professional experience

1987-1992 Research assistant at the Pfeleiderer-Institute for Fluid Flow Machines at University of Braunschweig

1992-2003 Pleuger Worthington GmbH (Flowserve ©) in Hamburg, responsible for engineering, marketing and management; last position as managing director

2003- Professor of Fluid Dynamics at Technische Universität Berlin with a focus on fluid mechanics in machines and systems

2006- Technical support for the Department of Pumps and Systems of the German Engineering Federation (VDMA)

2009- Member of several working groups of the German Association for Water, Wastewater and Waste (DWA)

2011 Vice Dean for research at School V: Mechanical Engineering and Transport Systems

2011-2014 1st Vice President of TU Berlin

2017- International Chair NTNU Norway “Water- and Wastewatertransport”

### Research interests

- Fluid mechanics in machines and systems
- Complex fluid systems like water and sewage systems
- Particle image velocimetry (PIV), laser doppler velocimetry (LDV)
- Cooling systems for motors, fluid flow machines, centrifugal pumps and wind turbines
- Intelligent Infrastructure – Water 4.0, Smart Cities

## Selected research projects

- OKADAR - Optimization of complex sewage system by simulation via model pumping systems, 2006-2009 (funding: IBB/EFRE)
- Optimization of dewatering system of large open pit mine, 2008-2012 (funding: Vattenfall)
- IMEBA - Diagnosis with active reaction avoid clogging in sewage systems, 2009-2012 (funding: IBB/EFRE)
- Investigation of rotating instabilities in vane cascade using time resolved particle image velocimetry, 2010-2015 (funding: DFG)
- Development of test standard on specific characteristics of sewage pumps in view of ErP-regulation, since 2011 (funding: VDMA / EUROPUMP)
- KURAS - Concepts for urban stormwater management and sewage systems, 2013-2016 (funding: Federal Ministry of Education and Research)
- VOK - Laser optical in-situ calibration, 2013-2016 (funding: Federal Ministry for Economic Affairs and Energy)
- TurbIn – Significant efficiency increase in gasturbines bei introducing instationary combustion and controlled fluid interaction; TP B2: Adaptive blade systems for flow control between rotor and stator in periodic throttled flow; DFG, SFB 1029, 2013 – 2016 (funding: DFG)
- Water 4.0 - Chair for digitalization in Waterinfrastructures at TU Berlin sponsored by Berliner Wasserbetriebe and Einstein Centre Berlin, 2017-2023

## Selected cooperation with Industry

- KSB-AG (Frankenthal)
- Grundfos (Danmark)
- WILO (Dortmund)
- Berliner Wasserbetriebe (Berlin)
- Hamburg Wasser
- Siemens Large Drives (Berlin)

## Specialties

- 2004- Author of part R2-R5 in Textbook: Dubbel – Taschenbuch des Maschinenbaus, Springer, Berlin, Heidelberg
- 2007/2008 Author of text book: Siekmann/Thamsen.: *Strömungslehre - Grundlagen*, Springer, Berlin, Heidelberg
- 2007/2008 Author of text book: Siekmann/Thamsen.: *Strömungslehre für den Maschinenbau – Technik und Beispiele*, Springer, Berlin, Heidelberg
- 2005- Founder and Teacher at University Course. Pump Engineer, Berlin, Graz, Erlangen
- 2010- Scientific Partner for Exhibition and Conference “Berlin Water International”
- 2012- Coordinator for cooperation TU Berlin / NTNU
- 2014 Price for the best lecture at TU Berlin
- 2014- Initiator and coordinator of Nordic Water Network (funded: DAAD)
- 2016- Committee Member German Water Partnership – Water 4.0

## Selected publications

- Thamsen, P. U.; Bubelach, T.; Pensler, T. & Springer, P.: *Cavitation in single vane sewage pumps*. International Journal of Rotating Machinery, Vol. 3, 2008
- Thamsen, P.U., Lee, A. & Oesterle, M.: *Reliability improvements in sewage pumping using diagnosis with active reaction*. Singapore International Water Week, 2008
- Thamsen, P.U. & Bubelach, T.: *Flow characteristics in shroud clearance of centrifugal pumps with non-symmetrical pressure distribution*. European Turbomachinery Conference (ETC), Istanbul, 2011
- Thamsen, P.U. & Wulff, S.: *Impact of sanderosion in submersible pumps*, 14th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, 2012
- Thamsen, P.U. & Höchel, K.: *Measurements at high speed side channel blower*. 14th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, 2012
- Pardowitz, B.; Tapken, U.; Sorge, R.; Thamsen, P.U.; Enghardt, L.: *Rotating Instability in an Annular Cascade: Detailed Analysis of the Instationary Flow Phenomena*, Journal of Turbomachinery Vol. 136, 2014
- Thamsen, P.U.; Hammer, S.; Peter, J.; Stiller, V.: *Gurney Flaps on Axial Pumps*, Proceedings of 11th European Turbomachinery Conference (ETC), Madrid, March 2015
- Abou Ackl, R.; Swienty, A.; Thamsen, P.U.: *Assessing the Accuracy of the Numerical Prediction of Air Entrainment into Pump Sump*, Conference on Modelling Fluid Flow (CMFF'15), Budapest, 2015
- Poehler, M.; Gerlach, S.; Hoechel, K.; Thamsen, P.U.: *Linking efficiency to functional performance by a pump test standard for wastewater pumps*. Proceedings of the ASME-JSME-KSME, Joint Fluids Engineering Conference, Seoul, 2015
- Thamsen, P.U.; Hammer, S.; Peter, J.; Meyer, R.; Phan, T.; Liebich, R.: *Adaptive Blade Systems for Increased Operating Range of a Turbomachine* Proceedings of the ASME-JSME-KSME Joint Fluids Engineering Conference, Seoul, 2015 (Expected to be published in Journal of Mechanical Science and Technology)
- Abou Ackl, R.; Thamsen, P.U.: „Experimental and Numerical Investigations on Air Entrainment in Pump Sump for Wet Pit Pumping Stations”, Technical Transactions, Environmental Engineering, 1-S (11), 2016 (113), ISSN 0011-456, S.3 -15, 2016