

# CURRICULUM VITAE

## 1 PERSONAL DETAILS

Full name	Tomasz Aleksander Kowalewski
Date of Birth	25th September, 1947
Place of Birth	Łódź, Poland
Citizenship	Polish
Married with Teresa Rycerz	1969
Children	Ingrid 1970 - 2004, son Oskar 1973
Work Address	Institute of Fundamental Technological Research Polish Academy of Science (IPPT PAN) Pawinskiego 5B, PL 02-106 Warszawa, Poland Phone: +48-228269803, Fax: +48-228269815 e-mail: tkowale@ippt.pan.pl <a href="http://www.ippt.pan.pl/staff/tkowale">http://www.ippt.pan.pl/staff/tkowale</a>
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## 2 ACADEMIC QUALIFICATIONS

Degrees	M.Sc. in Physics with Dean's Distinction Award, Warsaw University, 1969. Ph.D., Institute of Fundamental Technological Research, Polish Academy of Science (IPPT PAN), Warsaw, 1982. Habilitation, Institute of Fundamental Technological Research, Polish Academy of Science (IPPT PAN), Warsaw, 1995. Title of Professor, President of Poland, 2007.
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## 3 APPOINTMENTS

2017-2018	Professor, Deputy Head of the Department of Biosystems and Soft Matter, Institute of Fundamental Technological Research, Polish Academy of Science, Warsaw, Poland.
2010-2017	Professor, Deputy Head of the Department of Mechanics and Physics of Fluids, Institute of Fundamental Technological Research, Polish Academy of Science, Warsaw, Poland.

2009-2013	Deputy Director for Research, Institute of Fundamental Technological Research, Polish Academy of Science, Warsaw, Poland.
2001 – 2009	Head of the Department of Mechanics and Physics of Fluids, Institute of Fundamental Technological Research, Polish Academy of Science, Warsaw, Poland.
1995 – 2001	Head of the Division of Thermal and Free Surface Flows, Center of Mechanics, Institute of Fundamental Technological Research, Polish Academy of Science (IPPT PAN), Warsaw, Poland.
June 1993 – June 1994	Wissenschaftlicher Mitarbeiter (Senior Research Associate), Max-Planck-Institut für Strömungsforschung, Göttingen, Germany
March 1988 – May 1993	Wissenschaftlicher Mitarbeiter (Senior Research Associate), Institut für Angewandte Mechanik und Strömungsphysik, Georg-August-Universität, Göttingen.
Oct. 1985 – Feb. 1988	Visiting Scholar, research fellowship by Max-Planck-Institut, Göttingen.
Sept. 1969 – June 1987	Asystent (Research Assistant) and Adiunkt (Senior Research Associate), Institute of Fundamental Technological Research, Polish Academy of Science (IPPT PAN), Department of Fluid Mechanics, Warsaw, Poland.

## 4 SCHOLARSHIPS

Aug. – Sept. 1978	Visiting scholar at the Delft University, Holland (by Prof. J.A. Steketee). Hot-Wire Anemometry.
Nov. – Dec. 1980	Visiting scholar at the Max-Planck-Institut für Strömungsforschung, Göttingen (by Prof. E.-A. Müller). Investigations of two-phase flow with help of Laser-Doppler-Anemometry.
Mar. – June 1982	Visiting scholar at the Stanford University (by Prof. A. Acrivos). M. Curie-Sklodowska joined Polish-American project on sedimentation and flow of suspensions.
Oct. 1985 – Feb. 1988	Scientific fellowship from the Max-Planck-Society, Institut für Strömungsforschung, Göttingen (by Prof. E.-A. Müller). Experimental modeling of fuel injection and evaporation; fuel film deposition on the walls of engine manifolds.
Feb. – Apr. 1993	Visiting Fellow at the University of New South Wales, School of Mechanical and Manufacturing Engineering. (by Prof. G. de Vahl Davis). Experimental and numerical investigation of the natural convection.
Nov. 1993	Short visit at the Israel Institute of Technology, TECHNION, Dept. of Mechanical Engineering (by Prof. A. Yarin), Haifa, Israel. Investigations of liquid jet instability.

Mar. 1995 – Jan. 1996	Visiting Fellow at the Israel Institute of Technology, Lady Davis Fellowship, TECHNION, Dept. of Aerospace Engineering (by Prof. M. Wolfshtein), Haifa, Israel. Investigations of droplet combustion. Teaching (two semesters course) Advanced Methods in Aerodynamics.
April 1997	Visiting Professor at the University Paris XI (Orsay), lecturing: “Advanced experimental methods in fluid mechanics”.
April-May 1998	Visiting Professor at the University “La Sapienza” and Roma Tre (Rome), application of the PIV method for combustion flow
Nov. 1998	Short visit at the Israel Institute of Technology, TECHNION, Dept. of Mechanical Engineering (by Prof. G. Hetsroni), Haifa, Israel. Joint project on turbulent flow in the channel
March 1999	Visiting Professor at the University Paris XI (Orsay)
7 months within 1999 - 2002	Visiting Scholar at the Arizona State University, Joint atmospheric research, VTMX2000 program
June 2000	Short visit at the Israel Institute of Technology, TECHNION, Dept. of Mechanical Engineering (by Prof. G. Hetsroni), Haifa, Israel. Joint project on turbulent flow in the channel
October 2001	Short visit at the Israel Institute of Technology, TECHNION, Dept. of Mechanical Engineering (by Prof. G. Hetsroni), Haifa, Israel. Joint project on turbulent flow in the channel
March 2002	Visiting Professor at the University Paris XI (Orsay)
Nov. 2002	Short visit at the Israel Institute of Technology, TECHNION, Dept. of Aerospace Engineering (by Prof. Y. Levy), Haifa, Israel. Joint 5FP EU project on combustion FLOXCOM
Mar - April 2003	Visiting Professor at the University of New South Wales (Sydney), CFD Group of Prof. E. Leonardi
Dec 2007 - Jan 2008	Visiting Professor at the University of New South Wales (Sydney), CFD Group of Prof. E. Leonardi

## 5 RESEARCH EXPERIENCE

1969 – 1985	Research work at the Institute of Fundamental Technological Research (Warsaw), during the experimental study towards Ph.D. degree on low Reynolds number flow of suspensions; experimental investigations of the jet break-up, modeling of the fibre spinning.
1986 – 1987	Research work at the Max-Planck-Institut, Evaporation of fuels and retrograde fluids; atomisation of fuels; investigation of natural convection.
1988 – 1991	Research grants from Deutsche Forschungsgemeinschaft through the University Göttingen: <i>Experimental investigations of the instabilities of the evaporating liquid jets</i> (DFG 201/18) and
1991 – 1993	<i>Dynamic properties of the jets of liquid mixtures</i> (DFG201/20).

1995 – 1996	9 months Lady Davis Fellowship, Application of PIV and image processing for diagnostics of flow with combustion, Israel Institute of Technology, TECHNION, Haifa
1996 – 2010	Research collaboration (project conjoints) IPPT PAN – LIMSI CNRS, <i>L'étude numérique et expérimentale de la dynamique du gossissement et du décrochement des bulles de vapeur dans le cas de l'ébullition hétérogène</i>
1998 – 2002	Research collaboration IPPT PAN - TECHNION in framework of Polish Academy of Sciences – Israeli Academy of Sciences agreement, on <i>Turbulent thermal heat transfer in a channel flow</i>
1999 – 2002	Research collaboration with Arizona State University (USA) on <i>Environmental Fluid Dynamics</i>
Other activities	Nonlinear dynamic of the oscillating droplet; evaporation of droplets; evaporation induced surface instabilities; image processing; high-Speed video imaging; flow visualisation; tracking of tracer particles in the flow; natural convection; convection with phase changes; Particle Image Velocimetry (PIV), liquid crystals thermography (PIT), computational fluid dynamics, micro-fluidics, microPIV, nanofibres, drug release, Brownian dynamics of nano-objects.

## 6 MAIN RESEARCH TOPICS

Keywords: Fluid mechanics, micro-fluidics, nanofibres, bioengineering, multiphase flow, free surface flow, thermally driven flow, flow with phase changes. Experimental and numerical methods in fluid mechanics.

- Experimental investigations of liquid jet break-up. Evidence of “super” thin liquid bridges between liquid jet and the droplet. Instability of evaporating jets, modeling of droplet and liquid jet evaporation. Evaporation of emulsions [9, 10, 13, 31, 35, 43-45], microflows [116,119,120], nanofibres [103,113,124,132,133,136,137,140,152,153,155,156].
- Experimental and numerical investigation of nonlinear droplet oscillations. Description of droplet deformation. Development of non-intrusive method to measure dynamic surface tension, measurements of the physical parameters of evaporating surface by oscillating droplet method [1, 18, 20, 21, 25, 26, 36, 37, 40, 42].
- Development of high speed video recording methods based on CCD “frame-transfer” camera and image processor. Application of the method for investigation of droplets and jet instabilities [8, 11, 15, 19, 32].
- Experimental and numerical investigation of natural convection, identification of new flow structures; investigation of natural convection in presence of phase change (freezing) [12, 14, 16, 24, 27, 29, 41, 46-54,67].
- Development of new experimental technique for instantaneous measurement of temperature and velocity two-dimensional fields in thermal flow, based on application of liquid crystal as tracers [7, 14, 29, 34,48,49,89,94,101,102,121,154].

- Investigations of low Reynolds number two-phase flow in tubes (solid and liquid suspensions). Application of new measuring techniques for measuring velocity and particle concentration, laser doppler and ultrasound doppler anemometry [1-6].

## 7 EDUCATIONAL EXPERIENCE

Direct supervision of 7 M.Sc. and 3 Ph.D. students graduated at the Georg-August University Göttingen 1985-1994; 3 Ph.D. and 5 M.Sc. students at Warsaw University of Technology. Supervisor of 6 Ph.D. students at IPPT PAN.

### Graduate courses:

- *Advanced Methods in Aerodynamics* (two semesters) given at TECHNION, Dept. of Aerospace Engineering, 1995-1996.
- *Advanced Experimental Methods in Fluid Mechanics* (professor invite) short courses given at University Paris XI (Orsay), 1997, 1999, 2001.
- *Experiment and Modelling Solidification Processes* (professor invite) short courses given at University Roma 3 and La Sapienza, 2001.
- *Experimental Methods for Quantitative Analysis of Thermally Driven Flows*, lecturer and coordinator of the CISM course on Phase Change with Convection, Udine (Italy), 2002.
- *Contemporary Experimental Methods in Fluid Mechanics* advanced course given at Technical University of Czestochowa, 2011
- *Nanofluids and Nanofibres* advanced course given at Technical University of Krakow, 2014

## 8 REVIEWER

### Journals

Journal of Fluid Mechanics

Physics of Fluids

Archives of Mechanics (member of Editorial Board)

Computer Assisted Mechanics and Engineering Sciences

Journal of Engineering Mathematics (member of Board of Assoc. Referees)

Journal of Heat Mass Transfer

Applied Thermal Engineering

JMEMS, Meccanica, APS PRL, APS PRE, AIChEJ

Machine Graphics Vision

Fluid Dynamics & Materials Processing (member of Editorial Board)

Bulletin of Polish Academy of Sciences (member of Editorial Board)

Int. J. Thermal Scs.

Industrial & Engineering Chemistry Research

Exp. in Fluids

**Reviewer of Research grants, professor nomination**

National Science Foundation, Grants Committee, Washington, USA  
Australian Research Council, Grants Committee, Canberra, Australia  
The University of New South Wales, Promotion to Professor, Sydney, Australia  
Deutsche Forschungsgemeinschaft (DFG), Grants Committee, Germany.  
Israel Science Foundation (ISF), Grants Committee, Israel.  
State Scientific Committee (KBN), Grants Committee, Poland.  
National Scientific Committee (NCN), Grants Committee, Poland.

## 9 HONOURS

Scientific Secretary, XVIIIth Symposium on Advanced Problems and Methods in Fluid Mechanics, Sobieszewo (Poland), Sept.1985.  
Scientific Secretary, Publication Subcommittee, IUTAM Symposium on Adiabatic Waves in Liquid-Vapour Systems, Göttingen (Germany), Aug. 1989.  
Invited paper at 2nd European Fluid Mechanics Conference, Warsaw, September 1994  
Invited paper at Euromech Colloquium 355 on Interfacial Instabilities, Paris, September 1996  
The Polish Academy of Sciences Award (*Nagroda Wydziału IV PAN*) for research on jets and droplets, December 1996.  
International Symposium on Advances in Computational Heat Transfer CHT97, Cesme 1997, member of the Scientific Committee and the expository review lecture.  
European Science Foundation project on Applied Mathematics for Industrial Flow Problems, Polish member of the Steering Committee, member of the Scientific Committee, “International AMIF conferences”, 1998, 2000, 2002  
International Conference on Computational Heat and Mass Transfer, Cyprus, April 1999, member of the Scientific Committee.  
Invited paper at FLUVISU 99, 8me colloque nationale de visualisation et de traitement d’images en mecanique des fluides, Toulouse, June 1999.  
Chairman of the Euromech Colloquium 406 “Image processing methods in applied mechanics”, Warsaw, May 1999.  
Chairman of the European Science Foundation AMIF Workshop PCC99 “Phase Change with Convection”, Warsaw, June 1999.  
Member of the Committee of Mechanics of the Polish Academy of Sciences, 1999 - present  
Member of the International Board “Int. Flow Visualization Symposium”, 2000 - present  
Member of the Scientific Committee, “International Symposium on Advances in Computational Heat Transfer CHT01”, Australia 2001.  
Member of the Scientific Committee and invited paper at “International Symposium on Imaging and Visualization in Transport Phenomena VIM-01”, Antalya, 2002.  
Silver Cross Award by President of Poland for scientific achievements, 2002  
Coordinator of “Phase Change with Convection”, CISM Advanced School, Udine, 2002.  
Secretary General, “International Congress of Theoretical and Applied Mechanics”, Warsaw, 2004.  
Member of the XCCC IUTAM, 2004 - 2012  
Member of the EFMCC Euromech, 2007 - 2012

Member of the Scientific Council of the International Centre for Mechanical Sciences, Udine (Italy), 2009 -

Member of ECCOMAS Computational Fluid Dynamics Section, 2010 -

Chair of the Fluid Mechanics Division of the Committee of Mechanics PAN, 2007 - 2015

## 10 PRESENTATIONS AT INTERNATIONAL CONFERENCES

Sept. 1977	XIII Biennale on Adv. Fluid Mechanics	Kortowo, Poland
Sept. 1980	Flow Visualization II	Bochum, Germany
Sept. 1981	XV Biennale on Adv. Fluid Mechanics	Jahranka, Poland
Aug. 1984	16th ICTAM Congress	Lyngby, Denmark
April 1985	Euromech Colloquium	Cambridge, UK
April 1986	Taylor's 100 Birth. Aniv. Symp.	Cambridge, UK
Aug. 1986	Flow Visualization IV	Paris, France
Nov. 1987	ICALEO	San Diego, USA
April 1988	GAMM	Wien, Austria
Aug. 1988	17th ICTAM Congress	Grenoble, France
Aug. 1989	IUTAM Symposium on Topol. Fluid. Mech.	Cambridge, UK
Sept. 1989	XIX Biennial on Adv. Fluid Mechanics	Kozubnik, Poland
Dec. 1989	10 Aust. Fluid Mech. Conf.	Melbourne, Australia
Aug. 1991	1. Euromech Fluid Mech. Conf.	Cambridge, UK
Dec. 1991	11. ABCM Mech. Eng. Conf.	San Paulo, Brazil
Aug. 1992	18th ICTAM Congress	Haifa, Israel
Oct. 1992	Flow Visualization VI	Yokohama, Japan
Oct. 1993	1. Japan-Polish Joint Seminar	Tokyo, Japan
June 1994	2. Japan-Polish Joint Seminar	Pułtusk, Poland
Aug. 1994	10th Int. Heat Transfer Conference	Brighton, UK
Sept. 1994	2. Euromech Fluid Mech. Conf. (invited)	Warszawa, Poland
Sept. 1994	Jap.-Centr. Europe Workshop	Pułtusk, Poland
June 1995	Euromech Colloquium 335	Rome, Italy
July 1995	3 ICIAM Congress	Hamburg, Germany
Aug. 1996	19th ICTAM Congress	Kyoto, Japan
Sept. 1996	Euromech Colloquium 355 (invited)	Paris, France
Dec. 1996	Heat'96	Kielce, Poland
May 1997	Advances in Computational Heat Transfer (invited)	Cesme, Turkey
Sept. 1997	3. Euromech Fluid Mech. Conf.	Göttingen, Germany
June 1998	Advanced Computational Methods in Heat Transfer	Cracow, Poland
Sept. 1998	8th Flow Visualization	Sorrento, Italy
Oct. 1998	AMIF - ESF Conference	San Feliu, Spain
May 1999	Euromech 406 Colloquium (chair)	Warszawa, Poland
June 1999	FLUVISU 99 (invited)	Toulouse, France
June 1999	PCC99 AMIF-ESF Workshop (chair)	Warszawa, Poland
Aug. 1999	Cold-Region Thermal Eng. ISTESCR'99	Darmstadt, Germany
Sept. 1999	Laser Anemometry Adv. EALA'99	Rome, Italy

Aug. 2000	9th Flow Visualization	Edinburg, Scotland
Aug. 2000	20th ICTAM Congress	Chicago, USA
June 2001	CMEM 2001	Alicante, Spain
Dec. 2001	3d ISEH	Tempe (AZ), USA
May 2002	VIM'01	Belek, Turkey
June 2002	HEAT2002	Baranow, Poland
Aug. 2002	12 Heat Transfer Conf.	Grenoble, France
Oct. 2002	Eurotherm 71	Reims, France
June 2003	Eurotherm 69 (invited)	Bistra, Slovenia
Aug. 2003	5. Euromech Fluid Mech. Conf.	Toulouse, France
Aug. 2004	21st ICTAM Congress (GenSec)	Warsaw, Poland
May 2005	4th ICCHMT (invited)	Paris-Cachan, France
Sept. 2005	CDMM2005	Warsaw, Poland
June 2006	4th ICNMM ASME	Limerick, Ireland
June 2006	6th Euromech Fluid Mech. Conf.	Stockholm, Sweden
Sept. 2006	12th Flow Visualization	Goettingen, Germany
May 2008	IUTAM Symp. Modelling Nanomat. and Nanosys. (invited)	Aalborg, Denmark
June 2008	6th ICNMM ASME	Darmstadt, Germany
Aug. 2008	22nd ICTAM Congress	Adelaide, Australia
Sept. 2008	7th Euromech Fluid Mech. Conf.	Manchester, UK
Feb. 2009	GAMM 2009	Gdansk, Poland
June 2009	ExHFT-7	Krakow, Poland
May 2011	CMM-2011 (invited)	Warsaw, Poland
Sept. 2011	ETC-13	Warsaw, Poland
Aug. 2012	23rd ICTAM Congress	Beijing, China
Sept. 2012	NHT-2012 (invited)	Wroclaw, Poland
Sept. 2012	ECCOMAS2012 (invited)	Wien, Austria
Sept. 2015	PCM-CMM2015 (invited)	Gdansk, Poland
June 2016	17th ISFV (invited)	Gatlinburg, USA
Sept 2016	KKMP2016 (invited)	Belchatow, Poland
Sept. 2018	12th Euromech Fluid Mech. Conf.	Vienna, Austria

## 11 PATENTS

1. *Method of nanofibres production*, B. Laszkiewicz, T. Kowalewski, P. Kulpinski, B. Niekraszewicz, P. Czarnecki, M. Rubacha, B. Peczek, J. Jedrzejczak, Patent PL 197202, 31.03.2008 WUP 03/08.
2. *Method of producing nanomats*, T. A. Kowalewski, D. Lamparska, K. Zembrzycki Patent PL 222733B1, 31.08.2016 WUP 08/16.
3. *Application of insulation by nanofibrous polymer mats made with an electrospinning technology for the manufacture of neuroprotecting bandages for use in the prevention of trauma changes in the brain*, Andrychowski J., Czernicki Z., Frontczak-Baniewicz M., Golabek-Sulejczak D., Kowalczyk T., Kowalewski T.A., Nakielski P., Patent PL 225858B1, 31.05.2017, WUP 05/17.
4. *Use of wire insulations made from polymer nanofibers to prevent scarring after neurosurgery* Andrychowski J., Czernicki Z., Frontczak-Baniewicz M., Golabek-Sulejczak D., Kowalczyk T., Kowalewski T.A., Patent PL 226479B1, 31.07.2017, WUP 07/17.



## 12 PUBLICATIONS

1. *Experimental determination of filtration coefficients along bunch of fibres (in Polish)*, T.A. Kowalewski, W. Kalita, IFTR Reports - Prace IPPT, vol. 28/1976, Warszawa 1976.
2. *Optical method for measuring concentration profiles of droplet suspension flowing through a tube (in Polish)*, T.A. Kowalewski, IFTR Reports - Prace IPPT, vol. 49/1976, Warszawa 1976.
3. *Velocity profiles of suspension flowing through a tube*, T.A. Kowalewski, Arch. Mech., **32**, pp. 857-865, 1980.
4. *Laser Doppler measurements of the velocity profiles of concentrated droplet suspensions flowing through a tube*, T.A. Kowalewski, Bericht 118/1980, Max-Planck-Institut für Strömungsforschung, Göttingen 1980.
5. *Experimental investigation of laminar flow of suspension in channels (in Polish)*, T.A. Kowalewski, Ph.D. dissertation, IPPT PAN, Warsaw 1982.
6. *Laser method of particles distribution measurements in the flow of suspensions*, T.A. Kowalewski, in: Flow Visualization II, Bochum 1980, Ed. W. Merzkirch, Hemisphere 1982, pp. 541-546.
7. *Concentration and velocity measurements in the flow of droplet suspensions*, T.A. Kowalewski, Exp. in Fluids, **2**, pp. 213-219, 1984.
8. *An experimental study of the lateral migration of a droplet in a creeping flow*, W. Hiller, T.A. Kowalewski, Exp.in Fluids, **5**, pp. 43-48, 1987.
9. *Simultaneous measurement of temperature and velocity fields in thermal convective flows*, W. Hiller, T.A. Kowalewski, in: Flow Visualization IV, Paris 1986, Ed. Claude Veret, Hemisphere 1987, pp. 617-622.
10. *Eine einfache Hochgeschwindigkeitskamera mit CCD- Sensor*, W. Hiller, T.A. Kowalewski, Bericht 8/1987, Max-Planck- Institut für Strömungsforschung, Göttingen 1987.
11. *Freistrahlerversuche zum genauen Einsatz der Verdampfungseffekte bei Einspritzung von verschiedenen motorischen Kraftstoffen*, H. Chaves, T.A. Kowalewski, H.-D. Speckmann and G.E.A. Meier, Bericht 102/1987, Max-Planck-Institut für Strömungsforschung, Göttingen 1987.
12. *Untersuchung des Verdampfungsverhaltens von Einspritzstrahlen in einem Saugrohrmodell*, H. Chaves, T.A. Kowalewski, and G.E.A. Meier, Bericht 103/1987, Max-Planck-Institut für Strömungsforschung, Göttingen 1987.
13. *An optical method for surface tension measurements of dispersed liquid droplets*, W.J. Hiller, T.A. Kowalewski, in: Proc. of ICALEO'87, 6th Int. Congress on Application of Laser and Electro-Optics, Optical Methods in Flow and Particle Diagnostics, vol. 63. Ed. W. Stevenson, Publ. Laser Institut of America, pp. 106-110, Toledo 1988.
14. *Three-dimensional structures in laminar natural convection in a cubic enclosure*, W.J. Hiller, T.A. Kowalewski, St. Koch, Proc. of 1st. Word Conference on Exp. Heat Transfer, Fluid Mech., and Thermodyn., Dubrovnik 1988, ed. R.K. Shah et al., Elsevier Scis. Publ., New York, Amsterdam, London, pp. 722-729, 1988.
15. *Similarity in the behaviour of initially saturated or subcooled liquid jets discharging through a nozzle*, H. Chaves, T.A. Kowalewski, Th. Kurschat, G.E.A. Meier, E.A. Müller, Chem. Phys. **126**, pp. 137-143, 1988.

16. *Simultane Erfassung von Temperatur- und Geschwindigkeitsfeldern in einer thermischen Konvektionsströmung mit ungekapselten Flüssigkristalltracern*, W.J. Hiller, T.A. Kowalewski, St. Koch, in: 2D-Messtechnik DGLR-Workshop 18-19. Oct. 1988, Markdorf, DGLR-Bericht 88-04, pp. 31 - 39, Bonn 1988.
17. *Application of the frame transfer charge-coupled device for high speed imaging*, W.J. Hiller, T.A. Kowalewski, Optical Eng. **28** pp. 197-200, 1989; also in: Proc. 18th Int. Congr. of High Speed Photography and Photonics, 28. Aug.-2. Sept. 1988 Xian China, SPIE Vol. 1032, pp. 763 - 765, Washington 1990.
18. *Three-dimensional structures in laminar natural convection in a cubic enclosure*, W.J. Hiller, T.A. Kowalewski, St. Koch, Exp. Thermal and Fluid Sci., **2**, pp. 34-44, 1989.
19. *Surface tension measurements by the oscillating droplet method*, W.J. Hiller, T.A. Kowalewski, Physico-Chem. Hydrodynam., **11**, pp. 103-112, 1989.
20. *Optical investigation of oscillating liquid droplets*, W.J. Hiller, T.A. Kowalewski, ZAMM **69**(6), pp. 629-630, 1989.
21. *Schnelle Bildaufzeichnung mit CCD-Kameras und gepulsten LEDs - High Speed Image Recording*, W.J. Hiller, T.A. Kowalewski, B. Stasicki, Laser und Optoelektronik **21**, pp. 64-67, 1989.
22. *Experimental analysis of free oscillating liquid drops*, W.J. Hiller, T.A. Kowalewski, in: Proceedings of the 10th Australasian Fluid Mechanics Conference, University of Melbourne, Dec. 1989, pp. 7.21 -7.24, 1989.
23. *Liquid microjets - a useful tool for the measurement of material properties*, W.J. Hiller, T.A. Kowalewski, in: Proc. of the 10th ABCM Mechanical Engineering Conf., Rio de Janeiro (Brasil), Dec. 1989, Eds. M. Hirata et al., pp. 423 - 426, COPPE/UFRJ 1989.
24. *Vergleichende Grundlagenstudie über das Schwingungsverhalten oszillierender Wurzelkanalinstrumente*, Griesinger H.R., W.J. Hiller, T.A. Kowalewski, Kreter F., Zahnärztliche Praxis 5, pp. 168-173, 1989.
25. *Vibrationsinduzierte Strömungsfelder und Kavitationseffekte dreier Systeme zur Wurzelkanalaufbereitung im Modellversuch*, Griesinger H.R., W.J. Hiller, T.A. Kowalewski, Kreter F., Zahnärztliche Praxis 6, pp. 213-217, 1989.
26. *Experimental and Numerical investigation of natural convection in a cube with two heated side walls*, W.J. Hiller, T.A. Kowalewski, St. Koch, G. de Vahl Davis, M. Behnia, in: Proc. of IUTAM symposium on topological fluid mechanics, Cambridge U.K., Aug. 13-18, 1989, pp. 717 - 726, CUP 1990.
27. *Experimental and theoretical investigations of large amplitude oscillations of liquid droplets*, E. Becker, W.J. Hiller, T.A. Kowalewski, J. Fluid Mech. **231**, pp. 189-210, 1991
28. *Unsteady droplet evaporation* W.J. Hiller, T.A. Kowalewski, in: Proc. of 11th ABCM Mech. Eng. Conf. São Paulo (Brasil), Dec. 1991, Ed. Esp. da Revista Brasileira de Ciências Mecânicas São Paulo, pp. 17-20, 1991.
29. *Visualization of 3-D natural convection - comparison with numerical results*, W.J. Hiller, T.A. Kowalewski, St. Koch, K. Range, M. Behnia, G. de Vahl Davis, in: Proc. of 11th ABCM Mech. Eng. Conf. São Paulo (Brasil), Dec. 1991, Ed. Esp. da Revista Brasileira de Ciências Mecânicas São Paulo, pp. 21-24, 1991.

30. *Computer-aided discrimination of slow and fast tracer paths*, H.-H. Bartels-Lehnhoff, W.J. Hiller, T.A. Kowalewski, Exp. in Fluids, **13**, pp. 239-248, 1992; also in: Proceedings of The Sixth International Symposium on Flow Visualisation, Yokohama 1992, Eds. Tanida Y. & Miyashiro H., Springer-Verlag, pp. 873–877, 1992.
31. *Visualisation of 3-D natural convection*, W.J. Hiller, T.A. Kowalewski, St. Koch, P. Mitgau, K. Range, *Proceedings of The Sixth International Symposium on Flow Visualisation, Yokohama 1992* Eds. Tanida Y. & Miyashiro H., Springer-Verlag, pp. 674–678, 1992.
32. *Charge-coupled devices in flow visualisation*, W.J. Hiller, T.A. Kowalewski, V. Llorach Forner, B. Stückrad, M. Behnia, in: Proceedings of The Sixth International Symposium on Flow Visualisation, Yokohama 1992, Eds. Tanida Y. & Miyashiro H., Springer-Verlag, pp. 695–699, 1992.
33. *Behaviour of small diameter evaporating jets*, T.A. Kowalewski, W.J. Hiller, Behnia M., in: Proceedings of the 11th Australasian Fluid Mechanics Conference, University of Tasmania, Hobart, Australia, 14-18. Dec. 1992, pp. 905–908, U.T. 1992.
34. *High speed frame transfer CCD*, W.J. Hiller, T.A. Kowalewski, Tatarczyk Th., in: *Proc. 20th Int. Congr. of High Speed Photography and Photonics, 21-25. Sept. 1992 Victoria, Canada*, SPIE Vol. 1801, pp. 595–601, Washington 1993.
35. *Wake patterns of a piston gliding in a rotating circular duct*, W.J. Hiller, T.A. Kowalewski, in: Bluff-Body Wakes, Dynamics and Instabilities, IUTAM Symposium, Göttingen, Germany, Sept. 7-11, 1992, Eds. H. Eckelmann et al., Springer-Verlag, pp. 165–169, 1993.
36. *Onset of natural convection in a cube*, W.J. Hiller, St. Koch, F. Stella, T.A. Kowalewski, Int. J. Heat Mass Transfer, **13**, pp. 3251–3263, 1993.
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