

# Patrick Wagler

Chemist, Dr. rer. nat.

born March 23, 1968 in Berlin, married, one daughter



## Professional experience

### Project Manager, Forschungszentrum Jülich, 2015 - to date

Coordination of research and innovation funding programmes in biotechnology, life sciences and technology transfer, Funding program „[SME-innovative: Bioeconomy](#)“

### Group leader, Ruhr-Universität-Bochum, 2005 - 2015

Research group »Biomolecular Information Processing« chair Organic Chemistry, main research focus: »reconfigurable microfluidic systems for Biochemistry application«

### Cofounder & CEO, protostream GmbH, Dortmund, 2005 - 2010

Company objectives: conception, fabrication and cooperative marketing of bio- and nanotechnological products for »Life Science« industry

### Visiting professor, Coordinamento Interuniversitario Veneto per le Nanotecnologie & European Centre for Living Technology ([www.ecitech.eu](http://www.ecitech.eu)), 2004 - 2011

Degree course »Nanobiotechnology«

### Group leader, Fraunhofer Gesellschaft, Sankt Augustin, 2000 - 2005

Research team »BioMIP«, field of activity: »Evolvable microsystems«

### Research associate, Institut für Mikrotechnik Mainz GmbH, 1997 - 1999

Department Thin Film Technology, research focus: »Medical Microsystems«

### PostDoc, Plataforma Solar de Almería, Spain, 1996

Research area: »Photochemical Organometallic Catalysis«

### Research associate, Leibniz Institut für Katalyse Rostock, 1993 - 1996

PhD in Organic Chemistry, minor field of study: pharmacology & toxicology.

## Education and studies

Universität Rostock, Degree: Diplom-Chemiker, 1993

Basic military service, 1986—1988

High school (special classes for chemistry), Technical University Merseburg, 1986

## Skills and expertise

### ORGANISATION & MANAGEMENT:

Leadership experience as group leader in an interdisciplinary environment for many years; practical experience in validation of new technologies and research results; excellent project management as well as communication and presentation skills.

### TECHNOLOGIES & SPECIAL KNOWLEDGE:

Expert knowledge and laboratory experience in microfluidics for bioanalytical applications; Long-term expertise in characterisation and fabrication of chip-based separation devices (e.g. CGE), fluorescence detection as well as their application in biochemical systems; clean room and thin-film technology experience; Biophysical scientific methods of measurement as well as modification procedures of surface properties to improve biocompatibility & wettability.

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## SELECTED PUBLICATIONS IN PEER-REVIEWED JOURNALS

- G.A.S. MINERO, P. WAGLER, A. A. OUGHLI AND J. S. McCASKILL »ELECTRONIC PH SWITCHING OF DNA TRIPLEX REACTIONS.« RSC ADVANCES, 2015, 5 (35), 27313-27325.
- U. TANGEN, G. A. S. MINERO, A. SHARMA, P. WAGLER, R. COHEN, O. RAZAND, T. MARX, T. BEN YEHEZKEL AND J. S. McCASKILL »DNA-LIBRARY ASSEMBLY PROGRAMMED BY ON-DEMAND NANOLITER DROPLETS FROM A CUSTOM MICROFLUIDIC CHIP.« BIOMICROFLUIDICS, 2015, 9(4), 044103.
- P. WAGLER, U. TANGEN, J. OTT AND JOHN S. McCASKILL »GENERAL-PURPOSE, PARALLEL AND REVERSIBLE MICROFLUIDIC INTERCONNECTS» IEEE TRANSACTIONS ON COMPONENTS, PACKAGING AND MANUFACTURING TECHNOLOGY, 2015, 5 (3), 291-300.
- U. TANGEN, A. SHARMA, P. WAGLER AND J. S. McCASKILL »ON DEMAND NANOLITER-SCALE MICROFLUIDIC DROPLET DISPENSING AND MIXING USING A PASSIVE MICROFLUIDIC DEVICE.« BIOMICROFLUIDICS, 2015, 9, 014119.
- P. WAGLER, G. A. S. MINERO, U. TANGEN, J. W. DE VRIES, D. PRUSTY, M. KWAK, A. HERRMANN AND J. S. McCASKILL »SEQUENCE-SPECIFIC NUCLEIC ACID MOBILITY USING A REVERSIBLE BLOCK COPOLYMER GEL MATRIX AND DNA AMPHIPHILES (LIPID-DNA) IN CAPILLARY AND MICROFLUIDIC ELECTROPHORETIC SEPARATIONS.« ELECTROPHORESIS, 2015, 36, 2451-2464.
- P. WAGLER, U. TANGEN, T. MAEKE AND J.S. McCASKILL »FIELD PROGRAMMABLE CHEMISTRY: INTEGRATED CHEMICAL AND ELECTRONIC PROCESSING OF INFORMATIONAL MOLECULES TOWARDS ELECTRONIC CHEMICAL CELLS.« BIOSYSTEMS, 2012, 109(1), 2-17.
- H. BOUWES AND P. WAGLER »MO(O)RE BIOTECHNOLOGY THROUGH MEMS – A MARRIAGE BETWEEN TWO STATE-OF-THE-ART TECHNOLOGIES« COMMERCIAL MICRO MANUFACTURING VOL. 5 NO. 4, 2012.
- P. WAGLER »INNOVATIVE MIKROSYSTEMTECHNIK FÜR INDIVIDUALISIERTE MEDIZIN IN DER ZUKUNFT« »INNO « INNOVATIVE TECHNIK – NEUE ANWENDUNGEN 15. JAHRGANG, NR. 47, OKTOBER 2010
- S. CHEMNITZ, U. TANGEN, P. WAGLER, T. MAEKE, J.S. McCASKILL »ELECTRONICALLY PROGRAMMABLE MEMBRANES FOR IMPROVED BIOMOLECULE HANDLING IN MICRO-COMPARTMENTS ON-CHIP« CHEM. ENG. J. 2008, 135S, S276-279.
- U. TANGEN, P. WAGLER, S. CHEMNITZ, G. GORANOVIC, T. MAEKE, J. S. McCASKILL, »AN ELECTRONICALLY CONTROLLED MICROFLUIDICS APPROACH TOWARDS ARTIFICIAL CELLS.« COMPLEXUS VOL. 3, No. 1-3 (2006) 48-57.
- P. WAGLER, U. TANGEN, T. MAEKE, H.P. MATHIS, J.S. McCASKILL »MICROFABRICATION OF A BIOMODULE COMPOSED OF MICROFLUIDICS AND DIGITALLY CONTROLLED MICROELECTRODES FOR PROCESSING BIOMOLECULES« SMART MATERIALS AND STRUCTURES 2003, 12(5), 757-762.
- D. VAN NOORT, P. WAGLER, J.S. McCASKILL »HYBRID POLY(DIMETHYLSILOXANE)-SILICON MICROREACTORS USED FOR MOLECULAR COMPUTING« SMART MATERIALS AND STRUCTURES 2002 11(5), 756-760.
- J.S. McCASKILL AND P. WAGLER »FROM RECONFIGURABILITY TO EVOLUTION IN CONSTRUCTION SYSTEMS: SPANNING THE ELECTRONIC, MICROFLUIDIC AND BIOMOLECULAR DOMAINS« LECT. NOTES IN COMP. SCI. 2000, 1896, 286-299.
- P. WAGLER, S.-P. HEYN, B. CLASBRUMMEL »MIKROTECHNIK IN DER MEDIZIN« DEUTSCHES ARZTEBLATT 1999, 96, 27, A1830.
- P. DETEMPLE, W. EHRFELD, H. FREIMUTH, P. WAGLER »MICROTECHNOLOGY IN MODERN HEALTH CARE« MEDICAL DEVICE TECHNOLOGY 1998, 9, 18-25.
- B. HELLER, P. WAGLER, C. FISCHER, C. RICHTER, G. OEHME »CONTROL OF SELECTIVITY IN THE PHOTOCATALYSED SYNTHESIS OF PYRIDINES.« J. INF. RECORD. 1998, 24, 3-8.
- B. HELLER, D. HELLER, P. WAGLER, G. OEHME »CONTROL OF SELECTIVITY IN THE COBALT(I) - CATALYSED COCYCLISATION OF ALKYNES WITH NITRILES.« J. MOL. CATAL. A: CHEMICAL 1998, 136, 219-233.
- G. OEHME, B. HELLER, P. WAGLER »A SOLAR-DRIVEN COMPLEX CATALYZED PYRIDINE SYNTHESIS AS ALTERNATIVE FOR A THERMALLY-DRIVEN ONE« ENERGY 1997, 22, 327-336.
- B. HELLER, P. WAGLER, G. OEHME »CO(I)-CATALYSED PYRIDINSYNTHESIS IN WATER.« J. INF. RECORD. 1996, 22, 443-445.
- P. WAGLER, B. HELLER, J. ORTNER, K.-H. FUNKEN, G. OEHME »SOLARE PHOTOKATALYTISCHE COCYCLISIERUNG VON ACETYLEN UND NITRILEN IN WASSER.« CHEM. ING. T. 1996, 68, 823-826.

## PATENTS

- P. WAGLER, U. TANGEN, T. MAEKE, J.S. McCASKILL, S. CHEMNITZ »HYBRID MICROFLUIDIC CHIP AND METHOD OF MANUFACTURE« European Patent Application EP1541234, 2005.
- J.S. McCASKILL, T. FOSTER, P. WAGLER »METHOD FOR TRANSFERRING HETEROGENEOUS LIQUIDS IN MICROCHANNELS WITHOUT MIXING« European Patent Application EP1521631, 2003 & US Patent Publication US2006096923, 2005.
- J.S. McCASKILL, T. MAEKE, P. WAGLER »CONFIGURABLE MICROREACTOR NETWORK« EP1181974, 2002 and US Patent Publication US5992820, »CONFIGURABLE MICROREACTOR NETWORK«; 2001.
- J.S. McCASKILL, T. MAEKE, P. WAGLER »KONFIGURIERBARES MIKROREAKTORNETZWERK« Deutsche Patentschrift DE 10041853 C1, 2000.