



Publikationen 2006

**des
Instituts für Medizinische Physik und Biophysik
Universitätsklinikum Münster
Westfälische Wilhelms-Universität Münster**

Zeitschriftenartikel, Buchbeiträge, Bücher	Fachgebiete(e)*
<p>Balen B., Krsnik-Rasol M., Zamfir A., Milošević J., Vakhrushev S., Peter-Katalinić, J. Glycoproteomic survey of <i>Mammillaria gracillis</i> tissues grown <i>in vitro</i>. J. Proteome Res. 5 (2006) 1658-1666.</p>	BC, LM, PR
<p>Cederkvist H., Zamfir A., Bahrke S., Eijssink V.G.H., Sorle M., Peter-Katalinić J., M. G. Peter, M.G. Identification of a High-Affinity Binding Oligosaccharide by (+) Nanospray Quadrupole Time-of-Flight Mass Spectrometry of a Non-covalent Enzyme-Ligand Complex. Angew. Chemie Int. Ed. 45 (2006) 2429-2434.</p>	ESI, BC
<p>Cindric M., Bindila L., Cepo T., Peter-Katalinic J. Mass spectrometry-based glycoproteomic approach involving lysine derivatization for structural characterization of recombinant human erythropoietin. J. Proteom. Res. 5 (2006) 3066-3076.</p>	ESI, PR, BC
<p>Cramer R. C., Dreisewerd K. Principles and Instrumentation of UV-MALDI in M. Gross (Ed.): Encyclopedia of Mass Spectrometry, Vol. 6, Elsevier, in press, ISBN 0080438016</p>	LM
<p>Dreisewerd K., Berkenkamp S., Kölbl S., Peter-Katalinić J. Pohlentz G. Analysis of neutral milk oligosaccharides directly from thin-layer chromatography plates by matrix-assisted laser desorption/ionization orthogonal-time-of-flight mass spectrometry with a glycerol matrix. J. Am. Soc. Mass Spectrom. 17 (2006) 139-150.</p>	LM
<p>El Tayeb Musa Mustafa N., Keller U., Malkus U., Harmsen D., Reichelt R., El-Sanousi S. M. Morphological changes induced by wet-heat treatment in <i>Bacillus cereus</i> Endospores. Intern. J. Food Microbiol., submitted.</p>	BC, BT, EM, ZB

- González G., González C. S., Stracke W., Reichelt R., García L. EM, AFM
 New zeolite topologies based on intergrowths of the FAU/EMT systems.
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- Grote M., Westritschnig K., Valenta R. EM, KM, ZB
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- Hillenkamp, F., Peter-Katalinić, J. (Eds.) LM
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- Horneffer V., Glückmann M., Krüger R., Karas M., Strupat K., Hillenkamp F. LM
 Matrix-analyte-interaction in MALDI-MS: Pellet and nano-electrospray preparations.
 Int. J. Mass Spectrom. 249/250 (2006) 426-432.
- Horneffer V., Strupat K., Hillenkamp F. LM
 Localization of Non-covalent Complexes in MALDI-preparations by CLSM.
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- Hüve J., Haarlammert T., Steinbrück T., Kutzner J., Tsilimis G., Zacharias H. PH
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- Mormann M., Salpin J.-Y., Kuck D. Gas-phase Titration of $C_7H_9^+$ Ion Mixtures by FT-ICR Mass Spectrometry: Semiquantitative Determination of Ion Populations Generated by Cl-induced Protonation of C_7H_8 Isomers and by EI-induced Fragmentation of Some Monoterpenes. Int. J. Mass Spectrom. 249/250 (2006) 340-352. FT-ICR
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micro-aerosol emitted from birch trees.
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automated chip-based nanoelectrospray tandem mass
spectrometry.
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Zamfir A., Dinca N., Sisu E., Peter-Katalinić J. ESI
Copper-coated microsyringe interface for on-line sheathless
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carbohydrates.
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Diplom- und Doktorarbeiten

Diplomarbeiten

Souady, J.

"Molekulargenetische und strukturelle Charakterisierung von Tumor-assoziierten Glykosphingolipiden aus humanen Blasen- und Nierenurothelkarzinomen"

Diplomarbeit im Studiengang Molekulare Biotechnologie,
Universität Bielefeld (Betreuung: J. Müthing)

Hoffmann, P.

"Immunchemische Charakterisierung von Tumoren des Gastrointestinaltrakts"

Diplomarbeit im Studiengang Molekulare Biotechnologie,
Universität Bielefeld (Betreuung: J. Müthing)

Müsken, A.

"Etablierung eines Bakterien-Adhäsionstests zur Klassifizierung von Glykosphingolipid-bindenden enterohämorrhagischen *Escherichia coli*-Stämmen"

Diplomarbeit im Studiengang Molekulare Biotechnologie,
Universität Bielefeld (Betreuung: J. Müthing)

Dissertationen

Froesch, M.

"Entwicklung von Meßmethoden zur Analyse von Biomolekülen mittels Fourier Transform Ionen Zyklotron Resonanz Massenspektrometrie"

Dissertation im Fach Experimentelle Physik,
Mathematisch-Naturwissenschaftliche Fakultät der Westfälischen Wilhelms-Universität Münster (Betreuung: J. Peter-Katalinić/Prof. H. Fuchs, Physikalisches Institut)

Rohlfing, A.

"Untersuchungen zum Desorptionsprozess in der UV-matrix-unterstützten Laserdesorption/ionisation mit einer Flüssigmatrix"

Dissertation im Fach Experimentelle Physik,
Mathematisch-Naturwissenschaftliche Fakultät der Westfälischen Wilhelms-Universität Münster (Betreuung: Peter-Katalinić/Prof. H. Arlinghaus, Physikalisches Institut)

Vakhrushev, S.Y.

"Mass Spectrometric Methods and Bioinformatics for Glycomics: Application to Congenital Disorders of Glycosylation"

Dissertation im Fach Experimentelle Physik,

Mathematisch-Naturwissenschaftliche Fakultät der Westfälischen Wilhelms-

Universität Münster (Betreuung: J. Peter-Katalinić/Prof. H. Fuchs,

Physikalisches Institut)

Auswärtige Dissertationen abgeschlossen in 2006

Bindila, L. M.

"Analysis of biomolecules by high performance mass spectrometry and related separation techniques"

Dissertation im Fach Physik (Physics of Atoms and Molecules) (in Englisch),

Faculty for Physics der Universität Babes-bolyai, Cluj, Rumänien, April 2006

(Betreuung: Prof. Dr. N. Palibroda and J. Peter-Katalinić)

Steiner K.

"Unravelling details of the S-layer glycoprotein of *Geobacillus stearothermophilus* NRS 2004/3a"

Dissertation im Fach Biotechnologie (in Englisch),

Zentrum für NanoBiotechnologie der Universität für Bodenkultur Wien,

Österreich (Betreuung: J. Peter-Katalinić/Prof. P. Messner)

Fachsemester

Kollas, Oliver: Design, Konstruktion und Montage einer Lasereinkoppeleinheit für ein Lasermassenspektrometer zum Einsatz in der biomedizinischen Analytik

Fachsemester im Studiengang Physikalische Technik der FH Münster-Steinfurt

(Betreuung: K. Dreisewerd/Prof. Dr.-Ing. Uvo Hölscher, FH Steinfurt)

Vorträge (V) und Poster (P) mit Abstracts

Fachgebiet(e)*

- Baither D., Sobchenko I., Pesicka J., Pretorius T., Mohles V., Stracke W., Reichelt R., Nembach E. AFM, EM, SSM
AFM, TEM and SEM studies of nano-scale plate-like precipitates.
DPG-Tagung 2006, Beitrag MM4.1, 27.03.-31.03.2006, Dresden (V).
- Bartkowiak K., Henning S., Brandt B., Peter-Katalinić J. PR, LM, ESI
Peptide preparation for MALDI-MS and ESI-MS without C18-reversed phase purification.
39. Diskussionstagung der DGMS, 05.03.-08.03. 2006, Mainz (P).
- Baumgärtel V., Böse G., Peters R. LSM, ZM, BC
Optical single transporter recording - Kinetic analysis of nuclear export.
International Symposium on "Membrane Proteins and Cellular Dynamics", SFB 431 Uni Osnabrück, 02.11.-05.11.2006, Osnabrück (P).
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Optical recording of nuclear export.
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- Bauwens A., Bielaszewska M., Karch H., Schweppe H., Friedrich A., Reichelt R., Kemper B., Langenhanenberg P., von Bally G., Hüve J., Kahms M., Peters R., Mormann M., Peter-Katalinić J., Müthing J. BP, EM, ZB, FT-ICR, LSM, ESI, LM
Functional analysis of Shiga toxin 1 interactions with human brain microvascular endothelial cells: a nanotechnology-based strategy for analyzing virulence factors of pathogenic bacteria.
Nano2Life Meeting, 05.09.-07.09.2006, Cork, Ireland (P).

Bauwens A., Bielaszewska M., Karch H., Schweppe H., Friedrich A., Reichelt R., Kemper B., Langenhanenberg P., von Bally G., Hüve J., Kahms M., Peters R., Mormann M., Peter-Katalinić J., Müthing J.

BP, EM, ZB,
FT-ICR, LSM,
ESI, LM

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Cederkvist H., Zamfir A. D., Bahrke S., Eijssink V. G. H., Sorlie M., Peter-Katalinić J., Peter M. G.

ESI, BC

Identification of a High-Affinity Binding Oligosaccharide by (+) Nanospray Quadrupole Time-of-Flight Mass Spectrometry of a Non-covalent Enzyme-Ligand Complex.

10th International Conference on Chitin and Chitosan, EUCHIS '06, 06.09.-09.09.2006, Montpellier, France.

Bauwens A., Bielaszewska M., Karch H., Schweppe H., Friedrich A., Reichelt R., Kemper B., Langenhanenberg P., von Bally G., Hüve J., Kahms M., Peters R., Mormann M., Peter-Katalinić J., Müthing J.

BP, EM, ZB,
FT-ICR, LSM,
ESI, LM

Application of nanotechnologies for analysing virulence factors of pathogenic bacteria: Shiga toxin 1 caused damage of human brain microvascular endothelial cells.

Single cell analysis, 04.12.-05.12.2006, Münster, Germany (P).

Distler U., Pohlentz G., Dreisewerd K., Zamfir A., Berkenkamp S., Haier J., Senninger N., Peter-Katalinić J., Müthing J.

LM, ESI, KM,
BC

UV-MALDI-TOF-, nanoESI-QTOF- and IR-MALDI-o-TOF-Mass Spectrometry of Tumor-associated Glycosphingolipids Gb3Cer (CD77) and IV6Neu5Ac-nLc4Cer (CD75s) in Human Colon Carcinoma.

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 New zeolite topologies based on intergrowths of FAU/EMT
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 Yonago, Japan (V).
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 Bundles of hexagonally arranged microtubules as a novel
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 Timothy Grass (*Phleum pratense* L.) pollen.
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- Hülsewig M., Dreisewerd K., Berkenkamp S., Peter-Katalinić
 J., Müthing J. LM, KM, BC
 Automated multiple development (AMD) and analysis of
 CD15 glycosphingolipids directly from high-performance thin-
 layer chromatography plates by infrared matrix-assisted laser
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 spectrometry.
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 Wülfing C., Biera S., Hertle L., Peter-Katalinić J., Müthing J. LM, ESI, KM,
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- Hüve, J. LSM, ZM, BC
The method of 4Pi fluorescence microscopy.
Nano2Life, SRPT1 Meeting, 21.02.-22.02.2006, Münster (V).
- Kahms M., Hüve J., Wesselmann R., Böse G., Kastning K., Peters R. LSM, ZM, BC
On the way to optical nanoscopy – 4Pi microscopy in cell biology.
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- Kahms M., Hüve J., Wesselmann R., Böse G., Peters R. LSM, ZM, BC
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Advanced Microscopy Techniques and their Applications, 28.03.-29.03.2006, Braunschweig (V).
- Kaufmann M., Springer E., Geier M., Reichelt R., Pavenstädt H., Bek M. J. ZB, EM
MDR1 und ABHD1, zwei differentiell exprimierte renale Proteine bei hypertensiven D5-Dopaminrezeptor *Knockout* Mäusen.
37. Kongress der Gesellschaft für Nephrologie, 23.-26.09.2006, Essen (P).
- Kovacik L., Plitzko J., Grote M., Reichelt R. BP, EM, ZB
Automated energy-filtered electron tomography of channels in the wall of hazel pollen grains.
Proc. 16th Internat. Microscopy Congress, vol. 2, p. 694., 03.09.-08.09.2006, Sapporo, Japan (V).
- Kreußler S., Vollenbröker B., Bayer M., Reinhardt C., Amann K., Kölbl S., Peter-Katalinić J., Gabriels G., Pavenstädt H. PR, ESI, BC
Proteomanalyse bei der experimentellen chronischen Transplantationnephropathie.
Nephrologisches Symposium, 2006 (P).
- Krzyzanek V., Müller S. A., Engel A., Reichelt R. BP, EM
MASDET: A new automated program package for quantitative analysis of STEM images.
Symposium “Current Topics in Medical Technology”, 08.12.2006, Münster (P).

- Krzyzanek, V., Müller S. A., Engel A., Reichelt R. BP, EM
 MASDET: A new automated program package for quantitative analysis of STEM images.
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- Mormann M. FT-ICR
 Biomedical Analysis by High Resolution Fourier Transform Ion Cyclotron Resonance Mass Spectrometry (FT-ICR MS).
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 Investigation of Non-Covalent Interaction of High-Affinity Binding Oligosaccharides and Chitinase B by High Resolution Fourier-Transform Ion Cyclotron Resonance Mass Spectrometry.
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- Peter-Katalinić J.
 Massenspektrometrie in Molekularen Medizin: Status und Prognose.
 IMPB Kolloquium, WWU Münster, 10.05.2006, Münster (V).
- Peter-Katalinić J., Zamfir A.D. ESI
 Implementation of microfluidic devices for mass spectrometry-based glycomics. Applications to carbohydrate biomarker discovery.
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- Pohlentz G., Henning S, Peter-Katalinić J. ESI, PR, BC
 Identification and sequencing of elephant (*Elephas maximus*) milk proteins by preseparation on gel chromatography, proteolytic digest and direct nanoESIMS and MS/MS.
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- Pohlentz G., Henning S., Mormann M., Peter-Katalinić J. ESI, PR, BC
 Direct nanoESI MS analysis of glycopeptides derived from in-capillary or in-solution proteolytic digests of glycoproteins.
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Pohlentz G., Henning S., Mormann M., Peter-Katalinić J. PR, ESI, BC
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identification and/ or sequencing of hemoglobins directly from
blood samples.
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Reichelt R., Theiss D., Schmidt T., Dorschner H., Arndt K.-F. BP, EM
Field emission scanning electron microscopy (FESEM) study
of filled temperature-sensitive poly(vinyl methyl ether)
hydrogels.
Proc. 16th Internat. Microscopy Congress, vol. 3, p. 1801,
03.09.-08.09.2006, Sapporo, Japan (V).

Rohlfing A., Leisner A., Röhling U., Hillenkamp F, Dreisewerd LM
K.
UV-MALDI with a liquid matrix.
Desorption 2006, 03.09-07.09.2006, Athens, Greece (V).

Rohlfing A., Müthing J., Pohlentz G., Distler U., Peter- LM, BC
Katalinić J., Berkenkamp S., Dreisewerd K.
Highly Accurate IR-MALDI-MS Analysis of Phospho- and
Glycolipid Mixtures directly from HPTLC Plates.
17th International Mass Spectrometry Conference, 27.8.-
1.9.2006, Prag, Tschechische Republik (P).

Schweppe C. H., Bielaszewska M., Pohlentz G., Vakhrushev BC, KM, LM,
S. Y., Friedrich A. W., Karch H., Peter-Katalinić J., Müthing J. ESI
Structural verification of immunohistochemically detected
Shiga toxin 1-receptors on human endothelial cells by
combined thin-layer chromatography immunostaining and
mass spectrometry.
39. Diskussionstagung der DGMS, 05.03.-08.03. 2006, Mainz
(P).

Souady J., Pohlentz G., Bierer S., Wülfing C., Hertle L., LM, ESI, BC,
Peter-Katalinić J., Müthing J. KM
UV-MALDI-TOF- and ESI-QTOF-mass spectrometry of
tumor-associated sialyl Lewis^X (CD15s) – glycosphingolipids
in human bladder carcinoma.
39. Diskussionstagung der DGMS, 05.03.-08.03. 2006, Mainz
(P).

- Souady J., Pohlentz G., Meisen I., Peter-Katalinić J., Müthing J. LM, ESI, BC, KM
 High-performance thin-layer chromatography immunodetection coupled with nanoelectrospray ionization quadrupole time-of-flight mass spectrometry for full structural characterization of influenza A binding isomeric neolacto-series gangliosides from human granulocytes.
 HPTLC 2006, 09.10.-11.10 2006, Berlin (P).
- Steiner K, Pohlentz G, Dreisewerd K, Berkenkamp S, Messner P, Peter-Katalinic J, Schäffer C LM, BC
 New insights into the glycosylation of the surface layer protein SgsE from *Geobacillus stearothermophilus* NRS 2004/3a .
 10. Österreichischer Kohlenhydrat-Workshop, 16. 2. 2006, Wien, Österreich (P).
- Vakhrushev S. Y., Mormann M., Peter-Katalinić J. LM, ESI
 Mass Spectrometry in Molecular Medicine.
 7th meeting of the Belarussian photobiologists and biophysicists society, 21.06-23.06.2006, Minsk, Belarus (V).
- Weghofer M., Grote M., Kneidinger M., Kopec J., Valent P., Keller W., Valenta R., Vrtala S. EM, KM, ZB
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<p>Mormann M. Electron Capture Dissociation: Grundlagen und Anwendungen. SFB TR 22 Kolloquium, FZ Borstel, 29.03.2006, Borstel.</p>	<p>FT-ICR</p>
<p>Mormann, M. Wasserstoff-Übertragungsreaktionen in der Gasphase Workshop “Grundlagen der Fragmentierungsmechanismen organischer und bioorganischer Ionen” im Rahmen der 39. Jahrestagung der Deutschen Gesellschaft für Massenspektrometrie. Universität Mainz, 05.03.2006, Mainz.</p>	<p>FT-ICR</p>
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<p>Rohlfing A. Mechanismen und ausgewählte Anwendungen der IR-MALDI-MS Analytisches Seminar des Instituts für Anorganische und Analytische Chemie, Münster, 11.4.2006.</p>	<p>LM</p>
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Dreisewerd K.

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Müthing J.

Deutsche Krebshilfe (Mildred Scheel Stiftung) 106742 (Kooperationspartner: Prof. Dr. Peter-Katalinić (IMPB), PD Dr. J. Haier (Klinik und Poliklinik f. Allgemeine Chirurgie, UK Münster), Prof. Dr. N. Senninger (Klinik und Poliklinik f. Allgemeine Chirurgie, UK Münster)).

Müthing J.

IMF-Projekt, Mü 420505 zu DKH 106742.

Peter-Katalinić J.

3 Industrieprojekte.

Peter-Katalinić J.

EU-RP6 "Nano2Life" Network of Excellence für Bioanalytik.

Peter-Katalinić J.

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„Quadrupol Flugzeit und Fourier-Transform Ion Zyklotron Resonanz Massenspektrometrie von Glykosaminoglykanen und anderen Glykokonjugaten“, Projekt Z2: 2006-2008.

Peters R.

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Peters R.

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Peters R.

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Peters R.

Grants PE 138/20-1 und 20-2 der Deutschen Forschungsgemeinschaft.. 4Pi-Mikroskop mit FCS-Attachment.

Peters, R.

Deutsche Forschungsgemeinschaft, Grant number PE 138/19-1,2, "Exploring the cellular nanomachinery by 4Pi microscopy", Volume 1,000,000 €, 2005-2007.

Reichelt R.

DFG-Projekt NE 123/34-3 (E. Nembach, Inst. für Materialphysik, WWU und Reichelt): "Anwendungen des Rasterkraftmikroskops in der Materialphysik".

Reichelt R.

DRL / BMBF-Projekt Internat. Zusammenarbeit in Bildung und Forschung mit Mexiko, Projekt MEX06/020: "Oberflächencharakterisierung von Keramiken und nichtmetallischen Materialien mittels hochauflösender Rasterelektronen- und Atomkraftmikroskopie", 2006-2008.

Reichelt R.

Mitantragsteller des HBFEG-Antrags "Zweistrahl Focussed-Ion-Beam" (Prof. Dr. H. Fuchs (Physikal. Inst. und CeNTech), Prof. Dr. A. Putnis (Inst. f. Mineralogie), Prof. Dr. R. Reichelt (Inst. f. Medizin. Physik & Biophysik), Prof. Dr. G. Schmitz (Inst. f. Materialphysik)). Inbetriebnahme des Großgerätes erfolgte im Dez. 2006 im CeNTech.

Andere Aktivitäten

Dreisewerd

Vom Laser in der Medizin zur Lasermassenspektrometrie
Eintägiges wissenschaftliches Kolloquium anlässlich des 70. Geburtstages von
Prof. Hillenkamp, Großer Hörsaal der Anatomie, 6.5 2006

Müthing

Croatian Medical Journal, Scientific Board.
Neurologia Croatica, Scientific Board.

Peter-Katalinić

Vorstandsmitglied der Deutschen Gesellschaft für Massenspektrometrie
(DGMS).

Journal of Proteome Research, Editorial Board

Journal of the American Society for Mass Spectrometry, Editorial Board

Gastherausgeberin: „Proteomics Special Issue Glycomics“

Projektkoordination: EU-Projekt: SRPT1-Nano2Life WP7.

Reichelt

Mitveranstalter der interdisziplinären Vortragsreihe “Current Topics in Medical
Technology” am 08.12.2006 an der WWU, Münster

Acta Microscopica, Editorial Board

Diverse Projekte mit kleinen und mittleren Firmen / Industrie

Peters

Peters, R.

Visiting Scientist, The Rockefeller University, New York, NY, USA (1.2.2006-
31.8.2007)

Abkürzungsverzeichnis

AFM	Atomkraftmikroskopie
AL	Elektronenmikroskopische Untersuchungen zur Allergologie
BC	Biochemie
BP	Biophysik
BT	Biotechnologie
EM	Elektronenmikroskopie
ESI	Elektrospray Massenspektrometrie
FT-ICR	Fourier Transform Ion Cyclotron Resonance
KM	Klinisch-medizinische Fragestellung
LM	Laser-Massenspektrometrie
LSM	Laser-Scanning-Mikroskopie
MA	Elektronenstrahl-Mikrosondenanalytik
NBT	Nanobiotechnologie
PH	Physik
PR	Proteomics
PC	Physiologische Chemie
SSM	Scanning-Sensormikroskopie
TM	Tumormedizin
ZM	Zellbiologie