Peter Alexander Lieberzeit

List of Publications by Year in Descending Order

147 papers	3,707 citations	36 h-index	54 g-index
171 ext. papers	4,125 ext. citations	5.1 avg, IF	5.85 L-index

#	Paper	IF	Citations
147	Smart sensor for assessment of oxidative/nitrative stress biomarkers using a dual-imprinted electrochemical paper-based analytical device.. *Analytica Chimica Acta*, **2022**, 1191, 339363	6.6	4
146	Development of conductive molecularly imprinted polymers (cMIPs) for limonene to improve and interconnect QCM and chemiresistor sensing. *Sensors and Actuators B: Chemical*, **2022**, 356, 131293	8.5	3
145	How perfluoroalkyl substances modify fluorinated self-assembled monolayer architectures: An electrochemical and computational study.. *Analytica Chimica Acta*, **2022**, 1204, 339740	6.6	
144	Molecularly imprinted thin film surfaces in sensing: Chances and challenges. *Reactive and Functional Polymers*, **2021**, 161, 104855	4.6	11
143	Molecularly Imprinted Polymers for Recognition of Engineered Nanoparticles. *ECS Meeting Abstracts*, **2021**, MA2021-01, 1684-1684	0	
142	Thin Film Plastic Antibody-Based Microplate Assay for Human Serum Albumin Determination. *Polymers*, **2021**, 13,	4.5	5
141	Novel dual-sensor for creatinine and 8-hydroxy-2′-deoxyguanosine using carbon-paste electrode modified with molecularly imprinted polymers and multiple-pulse amperometry. *Sensors and Actuators B: Chemical*, **2021**, 334, 129636	8.5	10
140	Enhancing sensitivity of QCM for dengue type 1 virus detection using graphene-based polymer composites. *Analytical and Bioanalytical Chemistry*, **2021**, 413, 6191-6198	4.4	4
139	Polyvinyl chloride-based anion exchanger for efficient removal of chromium (VI) from aqueous solutions. *Polymers for Advanced Technologies*, **2021**, 32, 3995-4004	3.2	3
138	Direct assessment of very-low-density lipoprotein by mass sensitive sensor with molecularly imprinted polymers. *Talanta*, **2021**, 221, 121549	6.2	9
137	Selectivity enhancement of MIP-composite sensor for explosive detection using DNT-dengue virus template: A co-imprinting approach. *Materials Letters*, **2021**, 285, 129201	3.3	5
136	Biomimetic Sensors to Detect Bioanalytes in Real-Life Samples Using Molecularly Imprinted Polymers: A Review. *Sensors*, **2021**, 21,	3.8	6
135	Monitoring of Real-Time Loop-Mediated Isothermal Amplification with QCM: Detecting. *Biosensors*, **2021**, 11,	5.9	3
134	A microfluidic impedance-based extended infectivity assay: combining retroviral amplification and cytopathic effect monitoring on a single lab-on-a-chip platform. *Lab on A Chip*, **2021**, 21, 1364-1372	7.2	2
133	QCM-based assay designs for human serum albumin.. *Analytical and Bioanalytical Chemistry*, **2021**,	4.4	3
132	Development of a MIP-Based QCM Sensor for Selective Detection of Penicillins in Aqueous Media. *Chemosensors*, **2021**, 9, 362	4	1
131	Real-Time Water Quality Monitoring with Chemical Sensors. *Sensors*, **2020**, 20,	3.8	42

130	Design of heterostructured hybrids comprising ultrathin 2D bismuth tungstate nanosheets reinforced by chloramphenicol imprinted polymers used as biomimetic interfaces for mass-sensitive detection. *Colloids and Surfaces B: Biointerfaces*, **2020**, 188, 110775	6	6
129	Biomimetic sensors targeting oxidized-low-density lipoprotein with molecularly imprinted polymers. *Analytica Chimica Acta*, **2020**, 1116, 27-35	6.6	21
128	Direct detection of Listeria monocytogenes DNA amplification products with quartz crystal microbalances at elevated temperatures. *Sensors and Actuators B: Chemical*, **2020**, 308, 127678	8.5	11
127	Sensing the classical swine fever virus with molecularly imprinted polymer on quartz crystal microbalance. *Heliyon*, **2020**, 6, e04137	3.6	14
126	Novel amino-containing molecularly-imprinted polymer coating on magnetite-gold core for sensitive and selective carbofuran detection in food. *Microchemical Journal*, **2020**, 158, 105298	4.8	8
125	Molecularly imprinted polymeric coatings for sensitive and selective gravimetric detection of artemether.. *RSC Advances*, **2020**, 10, 34355-34363	3.7	3
124	Classification of alcohols obtained by QCM sensors with different characteristics using ABC based neural network **2020**, 23, 463-469		9
123	Molecularly imprinted polymers to detect profenofos and carbofuran selectively with QCM sensors. *Physics in Medicine*, **2019**, 7, 100016	2.7	19
122	Highly sensitive and selective electrochemical paper-based device using a graphite screen-printed electrode modified with molecularly imprinted polymers coated FeO@Au@SiO for serotonin determination. *Analytica Chimica Acta*, **2019**, 1077, 255-265	6.6	50
121	Real-Time and Online Monitoring of Glucose Contents by Using Molecular Imprinted Polymer-Based IDEs Sensor. *Applied Biochemistry and Biotechnology*, **2019**, 189, 1156-1166	3.2	8
120	Mass-Sensitive Sensing of Melamine in Dairy Products with Molecularly Imprinted Polymers: Matrix Challenges. *Sensors*, **2019**, 19,	3.8	9
119	Sensing array based on molecularly imprinted polymers for simultaneous assessment of lipoproteins. *Sensors and Actuators B: Chemical*, **2019**, 298, 126828	8.5	10
118	High-density lipoprotein sensor based on molecularly imprinted polymer. *Analytical and Bioanalytical Chemistry*, **2018**, 410, 875-883	4.4	22
117	Combined Layer/Particle Approaches in Surface Molecular Imprinting of Proteins: Signal Enhancement and Competition. *Sensors*, **2018**, 18,	3.8	12
116	Combining Two Selection Principles: Sensor Arrays Based on Both Biomimetic Recognition and Chemometrics. *Frontiers in Chemistry*, **2018**, 6, 268	5	16
115	Selective amperometric flow-injection analysis of carbofuran using a molecularly-imprinted polymer and gold-coated-magnetite modified carbon nanotube-paste electrode. *Talanta*, **2018**, 179, 700-709	6.2	43
114	QCM-based rapid detection of PCR amplification products of Ehrlichia canis. *Analytica Chimica Acta*, **2018**, 1001, 106-111	6.6	24
113	Investigating nanohybrid material based on 3D CNTs@Cu nanoparticle composite and imprinted polymer for highly selective detection of chloramphenicol. *Journal of Hazardous Materials*, **2018**, 342, 96-106	12.8	82

112	Aptamer-Based QCM-Sensor for Rapid Detection of PRRS Virus. *Proceedings (mdpi)*, **2018**, 2, 1038	0.3	1
111	Ion-Imprinted Polymer-Based Receptors for Sensitive and Selective Detection of Mercury Ions in Aqueous Environment. *Journal of Sensors*, **2018**, 2018, 1-6	2	5
110	H5N1 Virus Plastic Antibody Based on Molecularly Imprinted Polymers. *Methods in Molecular Biology*, **2017**, 1575, 381-388	1.4	4
109	An influenza A virus agglutination test using antibody-like polymers. *Journal of Biomaterials Science, Polymer Edition*, **2017**, 28, 1786-1795	3.5	3
108	Modified carbon black as label in a colorimetric on-chip immunoassay for histamine. *Sensors and Actuators B: Chemical*, **2017**, 246, 1092-1099	8.5	10
107	Surface Imprints: Advantageous Application of Ready2use Materials for Bacterial Quartz-Crystal Microbalance Sensors. *ACS Applied Materials & Interfaces*, **2017**, 9, 1129-1135	9.5	47
106	Towards Recycled Paper Based Impedance Biosensor with Wireless Readout. *Proceedings (mdpi)*, **2017**, 1, 619	0.3	3
105	Selective chemical sensor based on molecularly imprinted polymer to detect isoborneol in aqueous samples **2017**,		1
104	Biomimetic Recognition for Acoustic Sensing in Liquids. *Springer Series on Chemical Sensors and Biosensors*, **2017**, 323-344	2	1
103	A novel method for dengue virus detection and antibody screening using a graphene-polymer based electrochemical biosensor. *Nanomedicine: Nanotechnology, Biology, and Medicine*, **2017**, 13, 549-557	6	79
102	Sensor Array Based on Molecularly Imprinted Polymers for Simultaneous Detection of Lipoproteins. *Proceedings (mdpi)*, **2017**, 1, 510	0.3	1
101	Development of a Novel Platelets Functional Assay Using QCM. *Proceedings (mdpi)*, **2017**, 1, 514	0.3	1
100	A Review on Synthetic Receptors for Bioparticle Detection Created by Surface-Imprinting Techniques□rom Principles to Applications. *ACS Sensors*, **2016**, 1, 1171-1187	9.2	72
99	Molecularly imprinted porous beads for the selective removal of copper ions. *Journal of Separation Science*, **2016**, 39, 793-8	3.4	27
98	Disposable (bio)chemical integrated optical waveguide sensors implemented on roll-to-roll produced platforms. *RSC Advances*, **2016**, 6, 50414-50422	3.7	12
97	Low-Density Lipoprotein Sensor Based on Molecularly Imprinted Polymer. *Analytical Chemistry*, **2016**, 88, 1419-25	7.8	51
96	Dopaminergic receptor-ligand binding assays based on molecularly imprinted polymers on quartz crystal microbalance sensors. *Biosensors and Bioelectronics*, **2016**, 81, 117-124	11.8	19
95	Molecularly Imprinted Polymer Nanoparticles for Formaldehyde Sensing with QCM. *Sensors*, **2016**, 16,	3.8	37

94	Surface Modification of Integrated Optical MZI Sensor Arrays Using Inkjet Printing Technology. *Procedia Engineering*, **2016**, 168, 337-340		5
93	A Self-Organisation Synthesis Approach for Bacteria Molecularly Imprinted Polymers. *Procedia Engineering*, **2016**, 168, 557-560		7
92	Molecularly Imprinted Polymers for Diagnostics: Sensing High Density Lipoprotein and Dengue Virus. *Procedia Engineering*, **2016**, 168, 101-104		12
91	Molecular Imprinting Studies for Developing QCM-sensors for Bacillus Cereus. *Procedia Engineering*, **2016**, 168, 561-564		9
90	Molecularly Imprinted Polymer Based Sensor to Detect Isoborneol in Aqueous Samples. *Procedia Engineering*, **2016**, 168, 448-451		5
89	Polymers, Molecularly Imprinted **2016**, 1-20		0
88	S-layer based biomolecular imprinting. *RSC Advances*, **2015**, 5, 83558-83564	3.7	11
87	Recognition principle of Cu2+-imprinted polymers Assessing interactions by combined spectroscopic and mass-sensitive measurements. *Sensors and Actuators B: Chemical*, **2015**, 207, 976-980	8.5	13
86	Molecularly imprinted polymer nanoparticles in chemical sensing Synthesis, characterisation and application. *Sensors and Actuators B: Chemical*, **2015**, 207, 144-157	8.5	329
85	A novel approach to identify molecular binding to the influenza virus H5N1: screening using molecularly imprinted polymers (MIPs). *MedChemComm*, **2014**, 5, 617-621	5	27
84	Thermo-nanoimprinted biomimetic probe for LPS and LTA immunosensing. *Analytical Chemistry*, **2014**, 86, 1679-86	7.8	11
83	Molecularly imprinted polymer Ag2S nanoparticle composites for sensing volatile organics. *RSC Advances*, **2014**, 4, 12723-12728	3.7	21
82	Molecularly imprinted polymers for conductance sensing of Cu2+ in aqueous solutions. *Sensors and Actuators B: Chemical*, **2014**, 192, 522-528	8.5	29
81	Quartz Crystal Microbalance In-Line Sensing of Escherichia Coli in a Bioreactor Using Molecularly Imprinted Polymers. *Sensor Letters*, **2014**, 12, 1152-1155	0.9	12
80	Molecular Imprinting on the Nanoscale Rapid Detection of Ag Nanoparticles by QCM Sensors. *Procedia Engineering*, **2014**, 87, 236-239		5
79	Toward large-area roll-to-roll printed nanophotonic sensors **2014**,		1
78	Polymerization Parameters Influencing the QCM Response Characteristics of BSA MIP. *Biosensors*, **2014**, 4, 161-71	5.9	20
77	Self-assembled glucosamine monolayers as biomimetic receptors for detecting WGA lectin and influenza virus with a quartz crystal microbalance. *Analytical and Bioanalytical Chemistry*, **2013**, 405, 6471-8	4.4	20

76	Biomimetic strategies for sensing biological species. *Biosensors*, **2013**, 3, 89-107	5.9	63
75	MIP sensors on the way to biotech applications: Targeting selectivity. *Sensors and Actuators B: Chemical*, **2013**, 189, 199-202	8.5	42
74	Acidic and basic polymers for molecularly imprinted folic acid sensors QCM studies with thin films and nanoparticles. *Sensors and Actuators B: Chemical*, **2013**, 176, 1090-1095	8.5	35
73	Influenza A virus molecularly imprinted polymers and their application in virus sub-type classification. *Journal of Materials Chemistry B*, **2013**, 1, 2190-2197	7.3	61
72	Mass sensitive multi-sensor platform for receptor screening and quantification purposes. *Journal of the Chinese Advanced Materials Society*, **2013**, 1, 200-209		3
71	Quartz crystal microbalance sensor based on affinity interactions between organic thiols and molybdenum disulfide nanoparticles. *Sensors and Actuators B: Chemical*, **2012**, 162, 63-67	8.5	8
70	MIP Sensors on the Way to Real-World Applications. *Springer Series on Chemical Sensors and Biosensors*, **2012**, 167-187	2	1
69	Artificial Receptors for Mass-Sensitive Sensors **2012**, 195-235		4
68	MIP Sensors on the Way to Biotech Application: Selectivity and Ruggedness. *Procedia Engineering*, **2012**, 47, 534-537		8
67	Nanostructured materials with biomimetic recognition abilities for chemical sensing. *Nanoscale Research Letters*, **2012**, 7, 328	5	19
66	Artificial receptor layers for detecting chemical and biological agent mimics. *Sensors and Actuators B: Chemical*, **2012**, 170, 196-200	8.5	21
65	QCM gas phase detection with ceramic materials--VOCs and oil vapors. *Analytical and Bioanalytical Chemistry*, **2011**, 400, 2457-62	4.4	29
64	Dual and tetraelectrode QCMs using imprinted polymers as receptors for ions and neutral analytes. *Analytical and Bioanalytical Chemistry*, **2011**, 400, 2507-15	4.4	47
63	Surface molecular imprints of WGA lectin as artificial receptors for mass-sensitive binding studies. *Analytical and Bioanalytical Chemistry*, **2011**, 400, 2499-506	4.4	26
62	From mono- to polytopic interactions via hydrogen bonds Capacitive sensor studies. *Materials Science and Engineering C*, **2011**, 31, 553-557	8.3	3
61	From metal ions to biospecies: template-assisted synthesis as a strategy to generate artificial receptor materials. *Advanced Materials Letters*, **2011**, 2, 319-321	2.4	4
60	QCM-arrays for sensing terpenes in fresh and dried herbs via bio-mimetic MIP layers. *Sensors*, **2010**, 10, 6361-76	3.8	57
59	Chemical Sensors Based on Molecularly Imprinted Sol-Gel Materials. *Materials*, **2010**, 3, 2196-2217	3.5	85

58	Solvent vapour detection with cholesteric liquid crystals--optical and mass-sensitive evaluation of the sensor mechanism. *Sensors*, **2010**, 10, 4887-97	3.8	58
57	Mass-sensitive and resistive detection of bioanalytes - Synthetic antibodies and plastic replicae **2010**,		1
56	Comparing biomimetic and biological receptors for insulin sensing. *Chemical Communications*, **2010**, 46, 3128-30	5.8	50
55	Chemosensors for viruses based on artificial immunoglobulin copies. *Advanced Materials*, **2010**, 22, 2078-81	8.1	74
54	Imprinted sol-gel materials for monitoring degradation products in automotive oils by shear transverse wave. *Analytica Chimica Acta*, **2010**, 675, 53-7	6.6	28
53	Artificial receptor layers for detecting chemical and biological threats. *Procedia Engineering*, **2010**, 5, 381-384		5
52	Antibodies and Their Replicae in Microfluidic Sensor Systems□labelfree Quality Assessment in Food Chemistry and Medicine. *Sensor Letters*, **2010**, 8, 399-404	0.9	19
51	SAW RFID-Tags for Mass-Sensitive Detection of Humidity and Vapors. *Sensors*, **2009**, 9, 9805-15	3.8	17
50	Biomimetic Yeast Cell Typing-Application of QCMs. *Sensors*, **2009**, 9, 8146-57	3.8	28
49	QCM sensor array for monitoring terpene emissions from odoriferous plants. *Monatshefte F□ Chemie*, **2009**, 140, 947-952	1.4	19
48	Multisensor biomimetic systems with fully artificial recognition strategies in food analysis. *Monatshefte F□ Chemie*, **2009**, 140, 931-939	1.4	10
47	Sensors for bioanalytes by imprinting--polymers mimicking both biological receptors and the corresponding bioparticles. *Biosensors and Bioelectronics*, **2009**, 25, 9-14	11.8	46
46	Chemosensors in environmental monitoring: challenges in ruggedness and selectivity. *Analytical and Bioanalytical Chemistry*, **2009**, 393, 467-72	4.4	22
45	Pollen-imprinted polyurethanes for QCM allergen sensors. *Analytical and Bioanalytical Chemistry*, **2009**, 394, 523-8	4.4	41
44	Synthetic receptors for selectively detecting erythrocyte ABO subgroups. *Analytica Chimica Acta*, **2009**, 651, 215-9	6.6	41
43	Sensing picornaviruses using molecular imprinting techniques on a quartz crystal microbalance. *Analytical Chemistry*, **2009**, 81, 5320-6	7.8	112
42	Detection of viruses with molecularly imprinted polymers integrated on a microfluidic biochip using contact-less dielectric microsensors. *Lab on A Chip*, **2009**, 9, 3549-56	7.2	83
41	Application of yeast imprinting in biotechnology and process control. *Analyst, The*, **2009**, 134, 361-6	5	25

40	Generating Bio-Analogous Recognition of Artificial Materials Sensors and Electronic Noses for Odours. *Advances in Science and Technology*, **2008**, 58, 103-107	0.1	1
39	NANOSTRUCTURED PARTICLES AND LAYERS FOR SENSING CONTAMINANTS IN AIR AND WATER. *Nano*, **2008**, 03, 205-208	1.1	6
38	Acoustic chemosensors for real-life environments **2008**,		1
37	Bioanalogous Recognition with Sol-Gel Thin Films and Nanoparticles in Harsh Environments. *Materials Research Society Symposia Proceedings*, **2008**, 1094, 1		
36	Rapid bioanalysis with chemical sensors: novel strategies for devices and artificial recognition membranes. *Analytical and Bioanalytical Chemistry*, **2008**, 391, 1629-39	4.4	38
35	Real-life application of a QCM-based e-nose: quantitative characterization of different plant-degradation processes. *Analytical and Bioanalytical Chemistry*, **2008**, 391, 2897-903	4.4	35
34	Polymers imprinted with PAH mixtures--comparing fluorescence and QCM sensors. *Analytical and Bioanalytical Chemistry*, **2008**, 392, 1405-10	4.4	30
33	Functional Materials for Biosensing From Proteins to Cells and Pollen. *Sensor Letters*, **2008**, 6, 641-645	0.9	4
32	Trichloroacetic acid-imprinted polypyrrole film and its property in piezoelectric quartz crystal microbalance and electrochemical sensors to application for determination of haloacetic acids disinfection by-product in drinking water. *Journal of Applied Polymer Science*, **2007**, 106, 3861-3871	2.9	24
31	Printing materials in micro- and nano-scale: Systems for process control. *Sensors and Actuators B: Chemical*, **2007**, 126, 153-158	8.5	25
30	Cavities generated by self-organised monolayers as sensitive coatings for surface acoustic wave resonators. *Analytical and Bioanalytical Chemistry*, **2007**, 387, 561-6	4.4	11
29	Molecularly imprinted sol-gel nanoparticles for mass-sensitive engine oil degradation sensing. *Analytical and Bioanalytical Chemistry*, **2007**, 389, 441-6	4.4	31
28	Nanoparticles for detecting pollutants and degradation processes with mass-sensitive sensors. *Sensors and Actuators B: Chemical*, **2007**, 127, 132-136	8.5	37
27	Sensor technology and its application in environmental analysis. *Analytical and Bioanalytical Chemistry*, **2007**, 387, 237-47	4.4	75
26	Artificial Antibodies for Bioanalyte Detection Sensing Viruses and Proteins. *Advanced Functional Materials*, **2006**, 16, 1269-1278	15.6	181
25	Ceramic Materials for Mass-Sensitive Sensors - Detection of VOCs and Monitoring Oil Degradation. *Advances in Science and Technology*, **2006**, 45, 1799-1802	0.1	5
24	Imprinted Polymers in Chemical Recognition for Mass-Sensitive Devices **2006**, 173-210		11
23	Nanostructured polymers for detecting chemical changes during engine oil degradation. *IEEE Sensors Journal*, **2006**, 6, 529-535	4	12

22	Covalently anchored supramolecular monolayers on quartz surfaces for use in SAW sensors. *Sensors and Actuators B: Chemical*, **2006**, 113, 677-683	8.5	11
21	Softlithography in Chemical Sensing Analytes from Molecules to Cells. *Sensors*, **2005**, 5, 509-518	3.8	30
20	Imprinting as a versatile platform for sensitive materials hanopatterning of the polymer bulk and surfaces. *Sensors and Actuators B: Chemical*, **2005**, 111-112, 259-263	8.5	36
19	Chemical Recognition and Sensing by Self-Organization **2004**, 1-13		
18	From nanopatterning to functionalitySurface and bulk imprinting for analytical purposes. *Superlattices and Microstructures*, **2004**, 36, 133-142	2.8	18
17	Modifying polymers by self-organisation for the mass-sensitive detection of environmental and biogeneous analytes. *Sensors and Actuators B: Chemical*, **2004**, 100, 112-116	8.5	16
16	Synthetic receptors for chemical sensors--subnano- and micrometre patterning by imprinting techniques. *Biosensors and Bioelectronics*, **2004**, 20, 1040-4	11.8	65
15	QCM array for on-line-monitoring of composting procedures. *Analyst, The*, **2004**, 129, 432-7	5	48
14	Chemische Sensoren durch Molekulares Prgen. *Nachrichten Aus Der Chemie*, **2003**, 51, 1139-1143	0.1	1
13	Chemical Sensors from Molecules, Complex Mixtures to Cells Supramolecular Imprinting Strategies. *Sensors*, **2003**, 3, 381-392	3.8	13
12	Sensor strategies for microorganism detection--from physical principles to imprinting procedures. *Analytical and Bioanalytical Chemistry*, **2003**, 377, 540-9	4.4	43
11	Borderline applications of QCM-devices: synthetic antibodies for analytes in both nm- and m-dimensions. *Sensors and Actuators B: Chemical*, **2003**, 95, 20-24	8.5	23
10	Nano- and micro-structuring of sensor materialsfrom molecule to cell detection. *Synthetic Metals*, **2003**, 138, 65-69	3.6	62
9	Imprinting with Chemical Sensors - Challenges in Molecular Recognition and Universal Application. *Materials Research Society Symposia Proceedings*, **2003**, 787, 541		0
8	Sensor Materials - Detecting Molecules, Mixtures and Microorganisms -. *Materials Research Society Symposia Proceedings*, **2002**, 723, 211		
7	Molecular imprints as artificial antibodies a new generation of chemical sensors. *Sensors and Actuators B: Chemical*, **2000**, 65, 186-189	8.5	76
6	Solvatochromic betaine dyes as optochemical sensor materials: detection of polar and non-polar vapors. *Sensors and Actuators B: Chemical*, **2000**, 70, 263-269	8.5	26
5	Quality control of automotive engine oils with mass-sensitive chemical sensors--QCMs and molecularly imprinted polymers. *FreseniusJournal of Analytical Chemistry*, **2000**, 366, 802-6		40

4	Solid-state Sensors for Field Measurements of Gases and Vapors **2000**, 1-30		
3	Molecular imprinting in chemical sensing Detection of aromatic and halogenated hydrocarbons as well as polar solvent vapors. *FreseniuspJournal of Analytical Chemistry*, **1998**, 360, 759-762		71
2	Nanostructured functional polymers for engine oil quality sensors		2
1	Polyvinyl chloride modifications, properties, and applications: Review. *Polymers for Advanced Technologies*,	3.2	2