

# **Table of Contents**

---

The Dahlem Konferenzen <i>S. Bernhard</i>	ix
Introduction <i>W.G. Characklis and P.A. Wilderer</i>	1
Structure and Function of Biofilms <i>P.A. Wilderer and W.G. Characklis</i>	5
Hydrodynamics and Solute Transport at the Fluid-Biofilm Interface <i>A.B. Cunningham</i>	19
Particle Transport and Attachment <i>K.D. Stolzenbach</i>	33
Detachment from Biofilms <i>B.E. Rittmann</i>	49
Biofilms on Water-insoluble Substrates <i>E. Rosenberg</i>	59
<b>Group Report</b>	
Exchange Processes at the Fluid-Biofilm Interface <i>C.J. Gantzer, Rapporteur</i> <i>A.B. Cunningham, W. Gujer, B. Gutkunst, J.J. Heijnen, E.N. Lightfoot, G. Odham, B.E. Rittmann, E. Rosenberg, K.D. Stolzenbach, A.J.B. Zehnder</i>	73
Modeling Population Dynamics <i>O. Wanner</i>	91
Modeling Spatial Gradients <i>J.W.T. Wimpenny, A. Peters, and M. Scourfield</i>	111

Microsensors: Spatial Gradients in Biofilms <i>N.P. Revsbech</i>	129
Molecular Probes for Analysis of Microbial Communities <i>D.M. Ward</i>	145
<b>Group Report</b>	
Spatial Distribution of Biotic and Abiotic Components in the Biofilm <i>M. Walch, Rapporteur</i> <i>W.A. Hamilton, P.S. Handley, N.C. Holm, J.G. Kuenen, N.P. Revsbech, M.A. Rubio, D.A. Stahl, O. Wanner, D.M. Ward, P.A. Wilderer, J.W.T. Wimpenny</i>	165
<b>Minority Opinion</b>	
Biofilms as Dynamic Transport-Reaction Systems <i>E.N. Lightfoot</i>	193
Relative Activities of Cells in Suspension and in Biofilms <i>W.A. Hamilton and W.G. Characklis</i>	199
Comparative Physiology of Biofilm and Suspended Organisms in the Groundwater Environment <i>J.M. Kölbl-Boelke and P. Hirsch</i>	221
Modeling Nutrient Flux through Biofilm Communities <i>J.I. Prosser</i>	239
Transformation of Xenobiotics in Biofilms <i>E.J. Bouwer</i>	251
<b>Group Report</b>	
Cellular Physiology and Interactions of Biofilm Organisms <i>L.J. Stal, Rapporteur</i> <i>E. Bock, E.J. Bouwer, L.J. Douglas, D.L. Gutnick, K.D. Heckmann, P. Hirsch, J.M. Kölbl-Boelke, K.C. Marshall, J.I. Prosser, C. Schütt, Y. Watanabe</i>	269
The Aquatic Chemistry of Trace Metals in Biofilms <i>F.M.M. Morel and B. Palenik</i>	289
Metal Dissolution/Redox in Biofilms <i>H.A. Videla</i>	301

Table of Contents	vii
Susceptibility of Biofilms to Toxic Compounds <i>W.W. Nichols</i>	321
Microbial and Enzymic Activities in Soil Biofilms <i>R.G. Burns</i>	333
<b>Group Report</b>	
Biofilms: Properties and Processes <i>B. Palenik, Rapporteur</i> <i>J.-C. Block, R.G. Burns, W.G. Characklis, B.E. Christensen, W.C. Ghiorse, A.G. Gristina, F.M.M. Morel, W.W. Nichols, O.H. Tuovinen, G.-J. Tuschewitzki, H.A. Videla</i>	351
Glossary	369
List of Participants with Fields of Research	373
Subject Index	379
Author Index	387