Contents

| SCHURR, Ulrich: Imaging and Integrating Heterogeneity of Plant Functions: Functional Biodiversity from Cells to Biosphere – A Synopsis | 7 |
|--|-----|
| Novel Techniques in Plant Imaging | |
| BLÜMLER, Peter, WINDT, Carel W., and VAN DUSSCHOTEN, Dagmar: Magnetic Resonance of Plants | 17 |
| BISKUP, Bernhard, KÜSTERS, Ralf, SCHARR, Hanno, WALTER, Achim, and RASCHER, Uwe: Quantification of Plant Surface Structures from Small Baseline Stereo Images to Measure the Three-dimensional Surface from the Leaf to the Canopy Scale | 31 |
| PIERUSCHKA, Roland, RASCHER, Uwe, KLIMOV, Denis, KOLBER, Zbigniew S., and BERRY, Joseph A.: Optical Remote Sensing and Laser Induced Fluorescence Transients (LIFT) to Quantify the Spatio-Temporal Functionality of Plant Canopies | 49 |
| Dynamics and Heterogeneity of Photosynthesis | |
| LÜTTGE, Ulrich: Crassulacean Acid Metabolism a Natural Tool to Study Photosynthetic Heterogeneity in Leaves | 65 |
| CAEMMERER, Susanne von, and Osmond, Barry: Testing the Functional Implications of Photosynthetic Heterogeneity in Leaves of C ₄ Plants: "Reductionism during Scale Expansion" | 73 |
| JAHNKE, Siegfried, and PIERUSCHKA, Roland: Lateral Gas Diffusion inside Leaves: A Long Neglected Topic in Plant Physiology | 93 |
| Dynamics and Heterogeneity of Plant Growth and Transport | |
| BALUŠKA, František, SCHLICHT, Markus, WAN, Yinglang, BURBACH, Christian, and VOLKMANN, Dieter: Intracellular Domains and Polarity in Root Apices: From Synaptic Domains to Plant Neurobiology | 103 |
| Walter, Achim: Leaf Growth Dynamics | 123 |
| GLOSER, Vít, SEDLÁČEK, Pavel, and ORIANS, Colin M.: Shoot Heterogeneity in Trees: Consequences of Patchy N Availability and Vascular Transport | 135 |

Modelling and Theory of Spatial Heterogeneity

| 145 |
|-----|
| 161 |
| 101 |
| 175 |
| |