Preface

Stromatolites are the most intriguing geobiological structures of the entire history of the earth since the early beginning of the fossil record in the Archaean. Traditionally, stromatolites and related microbial sediments are interpreted as biosedimentological remains of biofilms and microbial mats.

Stromatolites are important environmental and evolutionary archives that give us plenty of information about ancient habitats, biodiversity, evolution of complex benthic biosystems, and generally of Global Change. However, many aspects of the formation, biology, and geobiology of these structures are still cryptic and poorly understood.

The Geobiology Group in Göttingen has successfully been granted a large international research project to solve many of these open questions. Therefore, we organised a symposium under the auspices of the DFG-Research Unit FOR 571 "Geobiology of Organo- and Biofilms": Coupling Geosphere and Biosphere via Microbial Processes and the Courant Research Centre Geobiology, which is part of the German Federal Excellence Initiative.

The symposium was dedicated to Ernst Louis Kalkowsky (1851–1938), who has introduced the terms "Stromatolith" and "Oolith" to the earth science community in 1908. 2008 was the 100th anniversary of his remarkable publication published in *Zeitschrift der Deutschen geologischen Gesellschaft: "Oolith und Stromatolith im norddeutschen Buntsandstein"*.

However, one group on their own cannot answer all open questions, and therefore we have organised the stromatolite symposium in Göttingen together with our international colleagues and friends. This meeting somewhat stands in the tradition of the "Death Valley International Stromatolite Symposium", which was very successfully organised by Stanley M. Awramik and Robert Riding in 1994. This meeting has given us new and exceptional ideas and information on the formation and environmental setting of stromatolites, and we hope that the symposium in Göttingen has delivered us new insights into the scientific progress of this topic, which has taken place during the past 16 years.

More than 120 scientists from various interdisciplinary fields, e.g. biology, microbiology, biogeochemistry, geology, sedimentology, from 19 countries world-wide have joined the meeting and presented their most recent research on stromatolites and related topics.

The proceedings volume with more than 30 contributions is a most recent contribution to the geobiology of stromatolites, related microbial sediments, and microbial metabolic processes and covers further wide range of geomicrobiological topics. The editors hope that this publication will close some gaps of knowledge and will give new inspirations of future research dealing with stromatolites.

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