

Preface

“A theory is more impressive the greater the simplicity of its premises, the more different are the kinds of things it relates, and the more extended its range of applicability. Therefore, the deep impression which classical thermodynamics made on me. It is the only physical theory of universal content, which I am convinced, that within the framework of applicability of its basic concepts will never be overthrown.”

Albert Einstein (1879-1955)¹

This book arose from an encounter between the two editors, a Geography professor and a planetary scientist, two people who might otherwise have little in common. Both of us had independently, along with many of the contributors to this volume, grown aware of the profound importance of nonequilibrium thermodynamics and the potential utility of the principle of Maximum Entropy Production. The possible applications span a bewildering diversity of fields, and thus we felt it useful to all of us to draw some of these threads together in a reference volume that captures the ‘state of the art’.

But our encounter at the American Geophysical Union meeting in San Francisco in December 2002 would not have led to our undertaking this book were it not for a growing informal network of researchers in MEP – many of us each feeling alone in the wilderness of our own fields. This network has grown, and many of the ideas in the chapters of this book have been developed at informal workshops, notably a workshop on Maximum Entropy Production at INRA in Bordeaux in April 2003 organized by Roderick Dewar and a series of ‘Beyond Daisyworld’ workshops organized by Tim Lenton and Inman Harvey. These workshops take considerable time and effort to organize, and the editors therefore are most grateful to these ‘unsung heroes’ of the field, who as well as bringing MEP researchers together play a vital role in exposing others to the idea.

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¹ quoted in MJ Klein (1967) Thermodynamics in Einstein’s Universe. Science 157: 509-516.

cess and the frustrations of document templates. Last, but not least, we are grateful to Ma-Li Kleidon for her help with editing the book chapters.

We hope that with this book we demonstrate the wide potential applicability of thermodynamic concepts, and the principle of Maximum Entropy Production in particular, ranging from the evolution of the Universe, planetary climate systems, life on Earth, and the economic activity of humans and its interaction with the environment.

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Life, Earth, and Beyond

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