

# Contents

## **Part I Minkowski's Representation of Special Relativity – Examples of Its Impact on the Twentieth Century Physics**

### **The Minkowskian Background of Whitehead's Theory of Gravitation ..... 3**

Ronny Desmet

### **The Experimental Verdict on Spacetime from Gravity Probe B ..... 25**

James Overduin

### **Rigidity and the Ruler Hypothesis ..... 61**

Stephen N. Lyle

### **Minkowski Space and Quantum Mechanics ..... 107**

Paul O'Hara

### **Relativity and Quantum Field Theory ..... 129**

Jonathan Bain

### **Ether, the Theory of Relativity and Quantum Physics ..... 147**

Eduardo V. Flores

## **Part II Implications of Minkowski's Ideas for the Philosophy of Space and Time**

### **Minkowski's Proper Time and the Status of the Clock Hypothesis ..... 159**

Richard T.W. Arthur

### **Why Spacetime Is Not a Hidden Cause: A Realist Story ..... 181**

Graham Nerlich

<b>Structural Explanations in Minkowski Spacetime: Which Account of Models? .....</b>	<b>193</b>
Mauro Dorato and Laura Felline	
<b>Relativity of Simultaneity and Eternalism: In Defense of the Block Universe .....</b>	<b>209</b>
Daniel Peterson and Michael Silberstein	
<b>Minkowski Space-Time and Thermodynamics .....</b>	<b>239</b>
Friedel Weinert	
<b>No Presentism in Quantum Gravity .....</b>	<b>257</b>
Christian Wüthrich	
<b>Part III The Impact of Minkowski's Ideas Beyond the Philosophy of Space and Time</b>	
<b>Space-Time, Phenomenology, and the Picture Theory of Language .....</b>	<b>281</b>
Hans Herlof Grelland	
<b>The Fate of Mathematical Place: Objectivity and the Theory of Lived-Space from Husserl to Casey .....</b>	<b>291</b>
Edward Slowik	
<b>Index .....</b>	<b>313</b>

Space, Time, and Spacetime

Physical and Philosophical Implications of Minkowski's

Unification of Space and Time

Petkov, V. (Ed.)

2010, XII, 314 p., Hardcover

ISBN: 978-3-642-13537-8