

FROM
MICRO
TO
MACRO

Adventures of a Wandering Physicist

Vlatko Vedral

Oxford University, UK & NUS, Singapore

 **World Scientific**

NEW JERSEY • LONDON • SINGAPORE • BEIJING • SHANGHAI • HONG KONG • TAIPEI • CHENNAI • TOKYO

CONTENTS

Prologue: The Point of It All	1
Chapter I: Physics and its Troublesome Gap	13
The Big Gap	18
A Possible Solution	21
Information	23
Thermodynamics	25
Chapter II: Chemistry and Computing: Lost in Translation	35
Computers: Chemistry's Big Gap	42
Conclusion	55
Chapter III: Biology: The Biggest Gap of Natural Science	57
Chapter IV: Uniting the Natural Sciences	73
Quantum Nature	75
Indeterminism	88
Life and No Life	94
Chapter V: Economics	111
Chapter VI: Sociobiology	131
Conclusion: Can We Bridge the Social-Natural Science Gap?	141
Epilogue: The World, the Flesh and the Devil	153
Acknowledgements	173
References	175
Index	179