Fictions in Science

Philosophical Essays on Modeling and Idealization

Edited by Mauricio Suárez



Contents

| Aci | knowledgments | vii | |
|---|---|-----|--|
| PART I Introduction | | | |
| 1 | Fictions in Scientific Practice MAURICIO SUÁREZ | 3 | |
| PART II The Nature of Fictions in Science | | | |
| 2 | Fictionalism ARTHUR FINE | 19 | |
| 3 | Laboratory Fictions JOSEPH ROUSE | 37 | |
| 4 | Models as Fictions ANOUK BARBEROUSSE AND PASCAL LUDWIG | 56 | |
| PART III The Explanatory Power of Fictions | | | |
| 5 | Exemplification, Idealization, and Scientific Understanding CATHERINE Z. ELGIN | 77 | |
| 6 | Explanatory Fictions ALISA BOKULICH | 91 | |

| vi | Contents | | |
|--|--|-------------------|--|
| 7 | Fictions, Representations, and Reality MARGARET MORRISON | 110 | |
| PART IV Fictions in the Physical Sciences | | | |
| 8 | When Does a Scientific Theory Describe Reality? CARSTEN HELD | 139 | |
| 9 | Scientific Fictions as Rules of Inference MAURICIO SUÁREZ | 158 | |
| 10 | A Function for Fictions: Expanding the Scope of Science ERIC WINSBERG | 179 | |
| PART V Fictions in the Special Sciences | | | |
| 11 | Model Organisms as Fictions RACHEL A. ANKENY | 193 | |
| 12 | Representation, Idealization, and Fiction in Economics: From the Assumptions Issue to the Epistemology of Modeling TARJA KNUUTTILA | 205 | |
| PART VI Fictions and Realism | | | |
| 13 | Fictions, Fictionalization, and Truth in Science PAUL TELLER | 235 | |
| 14 | Why Scientific Models Should Not Be Regarded as Works of Fiction RONALD N. GIERE | 248 | |
| References Contributors Index | | 259 271 275 | |