



Physical Relativity: Space-Time Structure from a Dynamical Perspective

By Harvey R. Brown

Oxford University Press. Paperback. Book Condition: New. Paperback. 240 pages. Dimensions: 9.1in. x 6.1in. x 0.6in. Physical Relativity explores the nature of the distinction at the heart of Einsteins 1905 formulation of his special theory of relativity: that between kinematics and dynamics. Einstein himself became increasingly uncomfortable with this distinction, and with the limitations of what he called the principle theory approach inspired by the logic of thermodynamics. A handful of physicists and philosophers have over the last century likewise expressed doubts about Einsteins treatment of the relativistic behavior of rigid bodies and clocks in motion in the kinematical part of his great paper, and suggested that the dynamical understanding of length contraction and time dilation intimated by the immediate precursors of Einstein is more fundamental. Harvey Brown both examines and extends these arguments (which support a more constructive approach to relativistic effects in Einsteins terminology), after giving a careful analysis of key features of the pre-history of relativity theory. He argues furthermore that the geometrization of the theory by Minkowski in 1908 brought illumination, but not a causal explanation of relativistic effects. Finally, Brown tries to show that the dynamical interpretation of special relativity defended in the book is consistent...



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