<<数学家用的量子场论>>

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内容概要

After completing my dissertation in differential geometry, I returned to Maharishi University of Management to join the faculty there. The greatest need for my services was in the physics department, and the chairman, the well-known John Hagelin, pointed the finger of authority and said 'quantum field theory!' The class to start in a few weeks. I laughed, but John was serious. Fortunately, I had audited Sidney Coleman's outstanding Harvard lectures and had taken very good notes. Equally fortunate, I had Robert Brandenburger's official aolutions to all the homework sets. I rolled up my sleeves and waded in. As we battled through the material, the beautiful architecture of Coleman's coures became apparent. It introduced the primary concepts - canonical quantization, renormalization, spin, functional integral quantization - one at a time and made each one practical before advancing to the next abstraction. It started with simple models and provided motivation for each elaboration. The students, however, pinned me to the board with questions about every step in the logic. Could I produce some mathematics to fill the gap? Was there a physical principle which would justify the proposed step? The standard references failed to meet the need, and for the most part I was stumped. It was a couple of years later, when the next group of graduate students was ripening, that I found time to think out some answers. The result was a draft of the first nine chapters of this book.

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