

Abstract Submitted
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Einstein and Oskar Klein: The Fifth Dimension as a Bridge across Quantum Chasms PAUL HALPERN, University of the Sciences in Philadelphia — In the mid 1920s, various physicists grappled with the underlying mechanisms for quantization. While at Ann Arbor, Oskar Klein developed a deterministic theory based upon the assumption of an undetectable fifth-dimension. With the rise of modern quantum mechanics, Klein, along with his colleagues, embraced the idea of wave functions acting in Hilbert space, and abandoned, for a time, the concept of an extra physical dimension. During the same period, Einstein, in contrast, began to explore five-dimensional unified field theories—first along with Walther Mayer, then with Peter Bergmann and Valentine Bargmann. This talk will explore connections—conceptual and philosophical—between Einstein’s and Klein’s theories, analyze the differences, examine the correspondence between the two theorists, and delve into the reasons each came to embrace and abandon the idea of the fifth dimension.

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