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Van Vleck and Slater: Two Americans on the Road to Matrix Mechanics

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I relate the story of how matrix mechanics grew out of the treatment of optical dispersion in the old quantum theory, paying special attention to the contributions of the American theoretical physicists John H. Van Vleck and John C. Slater. Van Vleck shares the credit with Max Born for having been the first to publish a full derivation of the crucial Kramers dispersion formula using Bohr's correspondence principle. Slater was one of the architects of the short-lived but influential Bohr-Kramers-Slater (BKS) theory that helped popularize the so-called Ersatz- or virtual oscillators central both to the treatment of dispersion in the old quantum theory and to the transition to matrix mechanics.