Quantum Electrochemistry

Synopsis

The origin of this book lies in a time before one of the authors (J. O'M. B.) left the University of Pennsylvania bound for the Flinders University. His collaboration with Dennis Matthews at the University of Pennsylvania had contributed a singular experimental datum to the quantum theory of elecÃ Â- trode processes: the variation of the separation factor with potential, which could only be interpreted in terms of a quantum theory of electrode kinetics. The authors came together as a result of grad~ate work of one of them (S. U. M. K.) on the quantum mechanics and photo aspects of elecÃ Â- trode processes, and this book was written during a postdoctoral fellowship held by him at the Flinders University. Having stated the book's origin, it is worthwhile stating the rationalÃ Â- izations the authors had for writing it. Historically, quantization in elecÃ Â- trochemistry began very early (1931) in the applications of the quantum theory to chemistry. (See the historical table on pages xviii-xix.) There was thereafter a cessation of work on the quantum theory in electrochemistry until a continuum dielectric viewpoint, based on Born's equation for solvation energy, began to be developed in the 1950s and snowballed during the 1960s.

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