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V. S. Varadarajan* (vsv@math.ucla.edu). *Quantum Foundations: an evolutionary view.*

In any active area of science, the structure of its foundations is not static but evolves with new discoveries and new techniques. For instance, the views of a contemporary mathematician on the foundations of analysis or algebraic geometry would be markedly different from the views of mathematicians a century earlier. The same is true for the foundations of quantum theory. In this talk I intend to sketch the evolution of the foundations of quantum theory from its early days at the beginning of the twentieth century to the present, touching on some of the following themes:

- The Bohr-Einstein dialogues
- Quantum mechanics = deformation of classical mechanics
- The von Neumann formalism/theory of measurement
- (Pauli) Symmetric and Grassmann algebras
- (Weyl-Wigner) Covariance = projective representations
- Feynman path-integrals
- The Aharonov-Bohm discovery and gauge theories
- Micro-structure of spacetime

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