

MAX BORN'S LEGACY TO QUANTUM MECHANICS: FROM ENTANGLEMENT TO QUANTUM GRAVITY

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Without doubt the 'unsung hero' of quantum mechanics is Max Born, whose 125th anniversary was celebrated recently. He not only suggested the name 'quantum mechanics' but, apart from actually inventing them, made the most significant developments in both matrix and wave mechanics. To him we can ascribe the commutation relation, the statistical interpretation, the concept of entanglement, the theory of collisions, the quantum adiabatic principle and the final proof of the stability of matter. After an historical overview I will present examples, many from the research of my own group, of the implementation of Born's ideas in diverse fields and show how they still permeate modern research in quantum mechanics, even the attempts to quantise gravity.