Quantum gravity and noncommutative space-times

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The superposition of principles of Quantum Mechanics and General Relativity imposes limits on the measurements of localizations in space-time, what leads to the modification of Heisenberg uncertainty relations in space-time (positions) sector. The algebraic counterpart of this modification is the noncommutative space-time structure, which should appear at ultra-short Planckian distances (Planck length $l_{Pl} \sim 10^{-33}$ cm). We discuss this new geometric paradigma which is related with Quantum Gravity effects as carrying the research into new mathematical domain of non- commutative geometry. We briefly consider three the most used models of noncommutative space-times: canonical quantum spaces, kappa-deformed Minkowski spaces and Snyder noncommutative spacer. Further we comment on various versions of modified Heisenberg uncertainty relations, e.g. following from string theory. Finally the difficulties with experimental confirmations of Quantum Gravity effects will be outlined.