5007-81-44 **Héctor Manuel Garduño Castañeda*** (neozt2k2000@hotmail.com), México City, Mexico, **Julio César García Corte** (jcgc@xanum.uam.mx), Mexico City, Mexico, and **Slavisa Djordjevic** (slavdj@fcfm.buap.mx), Puebla City, Mexico. *Brownian Motion as a Quantum Stochastic Process.*

Consider the Fock space H over the Hilbert space $h = L^2(\mathbb{R}_+)$. Using this space, we get a Quantum Probabilistic Space, where we have the notion of quantum stochastic adapted and martingale processes based on the, possibly unbounded, linear operators on H. In that sense, a process is a family of allowable linear operators, say $E = \{E(t) : t \geq 0\}$. A process is adapted if, for every time t, the operator $E(t)$ is an ampliation: $E(t) = E_t \bigotimes_a I$, where E_t is a linear operator acting on certain type of subespace on H.

The martingales are defined using properties of the Fock space. In this work, we present a way of view the canonical Brownian motion as a special case of a quantum martingale process via an isomorphism from H to the Hilbert space $L^2(\mathbb{W})$ and will present the Classic Ito's Formula as a particular case of the Quantic Ito's Formula.

Key words: Fock space; Exponential domain; Brownian motion; Ito's Formula; Quantum processes.

References: R.L. Hudson, An Introduction to Quantum Stochastic Calculus and some of its Applications, Quantum Probability Communications, Vol XI (pp.221-271). (Received April 01, 2013)