Stochastic Control of Beam Dynamics, N. CUFARO PETRONI, Phys. Dept. Univ. Bari; F. ILLUMINATI, S. DE SIENA, <u>S. DE MARTINO</u>, Phys. Dept. Univ. Salerno; R. FEDELE, Phys. Dept. Univ. Napoli; S. TZENOV, Fermilab - We exploit the formalism of stochastic variational principles to derive equations describing a quantum-like model of charged beam dynamics. By imposing coherence constraints we use these equations to determine the controlling potentials that realize the desired optimal evolution, the controlling potential which realize them.