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Quantum uncertainty and symplectic capacity BARBARA SAN-
BORN, Antioch College — In geometric quantum mechanics, a quantum system is
described as a Hamiltonian dynamical system, with a complex projective Hilbert
space as its phase space. The symplectic geometry of the quantum phase space
shows the Robertson-Schrodinger uncertainty relation as an example of the energy
identity from the theory of J-holomorphic curves. The identity relates the minimal
uncertainty product for two quantum observables to a symplectic capacity, sug-
gesting interesting relationships between the concepts of information capacity and
symplectic capacity.

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