Electric Field Effects on Motion of a Charged Particle Through a Saddle Potential in a Magnetic Field V. FESSATIDIS, Fordham University, K. SABEEH, Quaid-i-Azam University, Pakistan, N.J.M. HORING, Stevens Institute of Technology, M.L. GLASSER, Clarkson University — Electron transmission through a quantum point contact (QPC) in the presence of both electric and magnetic fields is examined. The QPC is modeled as a saddle potential. The first part of the paper is devoted to deriving the relevant Green's function including the effects of arbitrarily time dependent electric and constant magnetic fields. The derivation is carried out using Schwinger's operator equation of motion approach. In the second part of the paper we apply it to determine transmission of the electron guiding center through the QPC in constant electric and magnetic fields.

Vassilios Fessatidis
Fordham University, Bronx, NY