Meeting: 998, Houston, Texas, SS 13A, Special Session on Continuous Distributed Parameters Models in Mathematical Biology

998-93-281 **Hector F Puebla*** (hpuebla@imp.mx), Eje Central Lazaro Cardenas no. 152, Col. San Bartolo Atepehuacan, Mexico, df., c.p. 07730 Mexico, 07730 Mexico, df, Mexico, and **Roland Martin** (rmartin@imp.mx), Eje Central Lazaro Cardenas no. 152, Col. San Bartolo Atepehuacan, Mexico d.f., c.p. 07730, Mexico, 07730 Mexico, df, Mexico. *Suppression and control of nonlinear dynamics in distributed parameter biological systems.* Preliminary report.

A variety of mathematical models for biological dynamics are most appropriately framed as partial differential equations or distributed parameter processes. occurrence of nonlinear phenomena in biological systems have been observed in different distributed parameter systems. spatio-time chaotic regimes predicted by reaction-diffusion chemical models and the so-called autowave processes can be observed in biological systems. in distributed biological excitable media the propagation of pulses and excitation waves, the formation of stationary spatially inhomogeneous distributions of substances, and other self-organization phenomena are possible. in this work we propose feedback control laws to suppress and control spatial-time nonlinear dynamics generated by excitable biological and reaction-diffusion chemical systems. numerical simulations on both 1D and 2D distributed parameter biological systems shows the effectivity of the feedback control laws proposed. (Received March 01, 2004)