1054-45-85 **Rod Freed*** (raf12@cox.net), 25832 Empresa, Mission Viejo, CA 92691. *Solving Nonlinear Integral Equations.*

In many applications we must solve an integral equation when we do not know the precise form of the integrand. In cases of this sort we can obtain a solution in the following way. First, we find the differential equation which corresponds to the integral equation. Second, we note that the function that satisfies the differential equation (and thus satisfies the differential equation) is also the conditional expectation of a diffusion process. Third, we use the properties of diffusion processes in conjunction with nonparametric kernel regression to approximate the solution to our integral equation as accurately as we wish. (Received September 06, 2009)