

臺灣大學數學系演講

Inverse Problems Seminar

演講者 : Professor Matthew M. Lin (Department of Mathematics, National Chung Cheng University)

講題 : Numerical Approach to Solve Economic Dynamics with Uncertainties

時間 : 2011年10月11日 (星期二) 14:20~15:10

地點 : 臺灣大學天文數學館 304 室

摘要 : Modern economic theory views the economy as a dynamical system in which rational decisions are made in the face of uncertainties. The dynamics includes changes over time of market behavior such as consumption, investment, labor supply, and technology innovation, all interpreted in a broad sense. The Euler equation arises as the first order optimality condition when solving an economic dynamics system. Finding the policy function inherent in the Euler equation is an important but challenging task. This note proposes a Newton iterative scheme on approximating the unknown policy functions by composite 1-dimensional cubic spline. This spline approach has the advantages of freedom in the node collocation, simplicity in the derivative calculation, fast convergence, and high precision over the conventional projection methods. Applications to the neoclassical growth model with leisure choice are used to demonstrate the working of the idea. In particular, tensor products are employed to simplified and effectuate the operations.

主辦人 : 王振男 <http://www.math.ntu.edu.tw/~jnwang/ipseminar.htm>