Serie di seminari interdipartimentali MAT-STAT

Evento nell'ambito dell'Accordo Quadro con Regione Lombardia
METODI ENERGIA AMBIENTE

Progetto: Metodi di integrazione delle fonti energetiche rinnovabili e monitoraggio
satellitare dell'impatto ambientale

Mercoledì 8 giugno 2011 - Aula 15 – via dei Caniana, 2 - Bergamo

Ore 14.30: On parameter estimation for threshold autoregressive time series.

Relatore: Prof. Yuri Kutoyants, Université du Maine, France

Abstract: We consider several models of threshold TAR time series and the problems of threshold estimation by the large samples. It is shown that the maximum likelihood and bayesian estimators are consistent, have singular rate of convergence and the Bayesian estimators are asymptotically efficient. The properties of these estimators are described in non regular situations too. The relation between TAR time series and threshold ergodic diffusion processes is also discussed. The possibility of application of these results for TAR models in particular problems can be of the following type. Suppose that an AR process is used to describe the behavior of some characteristics. Then sometimes for the different values (domains) this AR time series can have different coefficients and the threshold estimation corresponds to the problem: how to find the values which are in some sense switching the model. Such situations can arise in any applied problems using time series.

Ore 15.30: Stochastic models for generation expansion planning in the Italian electricity market.

Relatore: Prof. M. Teresa Vespucci, Università di Bergamo

Abstract: Stochastic models are developed for assessing the impact on capacity expansion decisions of generation companies of constraints imposed on CO_2 emissions and on the ratio between the amount of energy produced using fossil-fuel (carbon, nuclear and cogeneration) and the amount produced from renewable energy sources (hydroelectric, wind and photovoltaic, biomass). The impact of different scenarios of energy prices and fuel prices (gas, coal and nuclear fuel) are also taken into account. The objective function represents a trade-off between the expected total profit over the planning period and a measure of risk related to the investments. The expected profit accounts for the actual sites and the cost of investment in new sites, the cost of maintenance, the use of emission quotas and green certificates. Risk measures are represented using the classical variance and the Conditional Value at Risk (CVaR) in the formulation of Rockafellar and Uryasev. The constraints take into account the availability of plants locations for each new technology as well as budget and CO_2 emission restrictions. A case study is presented related to the Italian electricity market.

Per informazioni: ilia.negri@unibg.it