ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

Assoc. Prof. Katia Colaneri

University of Rome - Tor Vergata

"Carbon policy risk and investment into emission abatement technologies: a stochastic optimization approach"

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Abstract

We study the problem of a profit maximizing electricity producer who has to pay carbon taxes and who decides on investments into technologies for the abatement of CO2 emissions in an environment where carbon tax policy is random and where the investment in the abatement technology is divisible, irreversible and subject to transaction costs. We consider two approaches for modelling the randomness in taxes. First we assume a precise probabilistic model for the tax process, namely a pure jump Markov process (so-called tax risk); this leads to a stochastic control problem for the investment strategy. Second, we analyze the case of an uncertainty-averse producer who uses a differential game to decide on optimal production and investment. We carry out a rigorous mathematical analysis of the producer's optimization problem and of the associated nonlinear PDEs in both cases. Numerical methods are used to study quantitative properties of the optimal investment strategy.

Michaela Hitz and the Department of Statistics look forward to seeing you at the talk!