Le professeur Jiang Qian Ying, chercheur d'origine chinoise et professeur associé à l'université de Gifu, Japon, exposera deux de ses récents travaux de recherche. Ses intérêts concernent la modélisation théorique des systèmes de transport et la théorie de la tarification.

1er exposé (9H-10H15) **Optimal Congestion Pricing Design Methods in Integrated Location Transportation Models**

A basic framework for the sensitivity analysis and continuous optimization of integrated land use/transportation model is presented. It is shown that separate sensitivity analysis procedures for a land use model with exogenous travel costs and a transportation network with elastic demand can be combined to get a sensitivity analysis procedure for the integrated model. Sensitivity-analysis-based techniques can then be used for the optimal design of land use plans and transportation policies so that certain social surplus functions are optimized. The proposed method is illustrated with a residential location model with a congestible transportation network sub-model.

Deuxième exposé (10h45-12H00) **Continuous Optimization Method for Integrated Land Use/ Transportation Models**

This talk addresses the problem of optimal congestion pricing design in an integrated location/transportation model. Firstly, the marginal cost pricing schemes are examined in a specific integrated residential location/transportation model. It is shown that marginal cost pricing enforced on transportation network alone does not optimize the social welfare associated with a model that has external economies (or diseconomies) in the location or land use sector. Optimality can be achieved by imposing marginal cost pricing on both the transportation and location sectors. But in practice, marginal cost pricing can hardly be implemented. In order to make use of integrated location (or land use)/transportation models for designing practical transportation and land use policies, efficient computational methods for solving the optimal design problems in integrated location/transportation models are needed. A sensitivity analysis method for integrated location/transportation models is developed, based on which optimization algorithms are provided for designing optimal tolls and location taxes (subsidies). Although the algorithm is formulated for a specific model, the methodology it illustrates works for any integrated location/transportation model which is constructed by linking a congestible traffic network model, with a location model where transportation is a derivative of the location activities. A numerical example is given for illustrating the optimization method and for comparing potential impacts of various pricing schemes.

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