情報理工学科主催講演会のご案内

上智大学理工学部情報理工学科では，理工学部との共催により，米国テネシー大学教授の Chanaka Edirisinghe 先生をお招きし下記の通り講演会を開催致します．講演内容は，社会情報分野における経営工学，生産・物流システムに関するテーマで，生産・在庫を考慮した配送計画についてご講演頂きます．

参加申し込みは不要で参加費は無料です．多くの皆様のご参加をお待ち申し上げております．

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日時：2013 年 7 月 23 日(火)　13:30-15:00
場所：上智大学 四谷キャンパス　クルップホール 4 階 423 教室

講師：Dr. Chanaka Edirisinghe,
Professor, The University of Tennessee,
College of Business, Knoxville, TN, U.S.A.

題目：New Fleet Routing Model for Inventory Pickup under Production Shutdown

概要：This presentation is focused on the problem of inventory removal from various production sites that have limited storage capacity. Inability for timely removal forces expensive production shutdowns, or the products may become obsolete due to finite shelf-life. Continuous and finite production rates are considered and a fleet of vehicles need to be scheduled to transport the product from plants to a central storage. In order to avoid shutdowns (or product expiry), vehicles may have to make multiple visits to a given plant before returning to the depot. One operational objective is to achieve the highest possible rate of product retrieval at the depot, relative to the total travel time of the fleet. This problem is a variant (and generalization) of the standard inventory routing problem (IRP) or the pickup and delivery problem (PDP). The motivating application for this paper is barge scheduling for oil pickup from off-shore oil-producing platforms with limited holding capacity, where shutdowns are prohibitively expensive.

A new “position-based” mixed-integer optimization model is proposed, and it is fundamentally different from the standard node-arc or path formulations in the literature. Our model assigns a unique position to each vehicle visit at a node in a chronological sequence of vehicle-nodal visits. This approach leads to substantial flexibility in modeling multiple visits to a node using multiple vehicles, whilst controlling the number of binary variables. Consequently, our position-based model solves larger model instances significantly more efficiently than the standard node-arc counterpart. Preliminary computational experience of the proposed model with the off-shore barge scheduling application is presented.

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