



## SÉMINAIRE conjoint avec / Joint Seminar with

La Chaire de recherche du Canada en distributique et La Chaire de recherche du Canada en logistique et en transport /  
The Canada Research Chair in Distribution Management and The Canada Research Chair in Logistics and Transportation

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## "A DYNAMIC PUBLIC BIKE SHARING BALANCING PROBLEM"

### Résumé / Abstract

In this seminar we introduce a dynamic public bike sharing (PBS) balancing problem. PBS systems, e.g., BIXI in Montreal or Vélib in Paris consist of a set of docking stations provided with bikes from and to which users can perform trips. The size of the networks and the demands have rapidly increased in cities where the use of bike transportation is perceived as an efficient mode by the users due to economic, health and sustainability reasons, thus raising the logistic problem of maintaining a good quality of service at all times. Indeed, at peak hours when the majority of daily trips are performed, some docking stations receive more demand than others. These stations are often points of either pick up or delivery of bikes. If no action is performed by the service provider, these docking stations rapidly become either empty or full, thus forbidding other users from using them. The service provider holds a fleet of trucks that must be scheduled to rebalance the network, which intuitively means transporting bikes from stations where free docking points are needed to stations where bikes are needed. We introduce several formulations of the problem and a solution approach that couples column generation with benders decomposition, and present some preliminary results.

**Note :** Claudio Contardo effectue présentement un stage postdoctoral à l'École Polytechnique de Montréal. Il a obtenu son doctorat à l'Université de Montréal, sous la direction de Bernard Gendron et Jean-François Cordeau. / Claudio Contardo is doing a postdoctoral fellowship at École Polytechnique de Montréal. He has received his Ph.D. degree at Université de Montréal, under the supervision of Bernard Gendron and Jean-François Cordeau.

**MERCREDI / WEDNESDAY**

**22 février 2012 /**

**February 22nd, 2012**

**10h30**

**Salle / Room 5441**

**Pavillon André-Aisenstadt**

**Université de Montréal**

**Bienvenue à tous / Welcome to all**

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