



## Séminaire du CIRRELT

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### COMBINATORIAL DESIGN OF COMPLEX MACHINING SYSTEMS FOR AUTOMOTIVE INDUSTRY

**Abstract:** Our experience in development decision support systems (DSS) for machining line design and balancing is presented. It concerns machining lines for the automotive industry. In order to offer to machining line designers a cognitive aid for early design stages such DSS are developed. The objective is to assist the decision makers in finding the configuration of a new line that will meet quality and productivity requirements and minimize the investment costs. The current versions of DSS are oriented to design of mass production machining lines with multi-spindle heads as well as reconfigurable lines composed of machining centers. This decision support systems are based on mathematical models and methods which were devised to provide the designers with the optimal parameters of new line configuration including the required number of working stations of different types, the number of machines at each station and spindle heads at each machine. The system is implemented under Autodesk Inventor and includes the modules for part modeling, process planning and machining system configuration. Its modular character and open architecture make upgrading with new mathematical tools suitable for other manufacturing lines easy and fast. Moreover, it can be employed either as a separate software or integrated in a Product Lifecycle Management (PLM) tool.

**Note:** En plus d'être un professeur de classe exceptionnelle à l'École des mines de Saint-Étienne, Alexandre Dolgui est le Directeur délégué du Laboratoire LIMOS, UMR 6158 CNRS et de l'Institut Henri Fayol et est Président du Comité technique de l'IFAC (International Federation of Automatic Control). Il est l'Éditeur en chef de la revue «International Journal of Production Research» (Taylor & Francis).

La présentation sera en français.

LUNDI

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Local 3370  
Pavillon Adrien-Pouliot  
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Ouvert à tous

Organisateur  
Mustapha Nour El Fath



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