

To Applied Mathematical Modelling journal

Caruaru, July 5, 2023

**Cover letter**

Dear editor,

Along with this letter, I am sending a paper in which I present the Multi-product Batch Processing Time Maximization (MPBPTM) problem, as well as a mathematical model and an analytical solution method with polynomial time complexity.

The problem was identified by me during the development of a solver for production planning in extruders.

As I am applying a local search heuristic, at each iteration I need to generate a new solution, and therefore I need to solve the MPBPTM problem.

I had a vague idea about the proposed analytical method while I was presenting the problem to my co-workers, and I managed to develop the method the same day before going to sleep, as I was really excited about the idea of the method and about the impact that this method would generate for the performance of the solver I'm developing.

According to the bibliographic research carried out by the authors of the mentioned paper, the problem has not yet been presented in the scientific literature.

However, the mathematical model and, in particular, the analytical method developed for the MPBPTM problem are also very important scientific contributions.

The language used in the paper is simple, so that many researchers can easily understand the work.

I am then waiting for your final decision with great expectation of approval of the work

for publication in the Applied Mathematical Modelling journal.

Sincerely,

Tatiana Balbi Fraga

Founding leader of the Systems Analysis, Modeling and Optimization Group  
and Professor of the Production Engineering Course  
at the Academic Center of Agreste - Federal University of Pernambuco