# A Novel and Efficient Method for Integer Linear Programming Problems

**Kadriye Şimşek Alan**

*Yildiz Technical University, Dept. of Mathematical Engineering, 34220, Istanbul, Turkey*
E-mail: ksimsek@yildiz.edu.tr

**Abstract:** In this study, an iterative method based on parameterization is developed to solve linear integer programming problems with linear constraints and a linear objective function, and a new efficient and reliable algorithm is presented. There are several methods used for solving LIP problems; however, most of these methods encounter difficulties in terms of computation and timing. In the proposed method, such computational and timing challenges are absent, providing significant advantages for the user. In our method, first, the original LIP problem is transformed into a new LIP problem using parameterization. Then, it is solved sequentially using interval arithmetic, graphical method, and Cartesian product. In this method, which is more better than the branch-and-bound and cutting plane methods, alternative solutions are also defined and presented to the decision-maker.
Numerical examples are provided to demonstrate how the method is implemented and its effectiveness.

## References

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