

A big title

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Abstract

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1 Introduction

2 Notations

Beck's book [\[1\]](#).

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- 7 Methods of inexact proximal point
- 8 Nesterov's acceleration in the non-convex case

References

- [1] A. BECK, *First-order Methods in Optimization*, MOS-SIAM Series in Optimization, SIAM, israel, 2017.