# A big title

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**Abstract**

Abstract abstract abstract.

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# 1 Introduction

Let $\mathbb{R}^n$ be the embient space. We consider

$$\min_{x\in\mathbb{R}^n} \left\{F(x) : f(x) + g(x)\right\}.$$

Unless specified, assume $f$ is a smooth function with $L$-Lipschitz gradient operator. Unless specified, assume $g$ is a convex function.

# 2 Notations

Beck's book [1].

### 2.1 Foundamentals in convex analysis

### 2.2 Canonical forms of Nesterov's accelerated methods

## 3 Unifying variants of Nesterov's accelerated methods

## 4 Generic convergence anlaysis of accelerated methods

## 5 Catalyst accelerations and future works

## 6 Performence estimation problems

## 7 Methods of inexact proximal point

## 8 Nestrov's acceleration in the non-convex case

## References

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