

# 带有高斯变异的 Lévy 飞行改进蝙蝠算法

杜艳艳, 刘升

(上海工程技术大学 管理学院, 上海 201620)

**摘要:** 提出一种带有高斯变异的 Lévy 飞行特征的改进蝙蝠算法(GMBA).该算法中, 每只蝙蝠根据当前位置的优劣程度选择不同的飞行方式, 位置较差的采用 Lévy 飞行, 位置较好的逐步向群体最优位置移动; 最后在算法满足变异条件时, 应用高斯变异策略, 从而在一定程度上避免了算法陷入局部最优, 并能获得高精度的解.结果显示, GMBA 的优化性能有了显著的提高.

**关键词:** 蝙蝠算法; 高斯变异; Levy 飞行; 全局优化

**中图分类号:** TP183

**文献标识码:** A

**文章编号:** 1000-7180(2018)03-0083-05

## **An Improved Bat Algorithm With Gauss Mutation and Lévy Flights**

DU Yan-yan, LIU Sheng

(School of Management, Shanghai University of Engineering Science, Shanghai 201620, China)

**Abstract:** An improved bat algorithm with Gauss mutation and Lévy Flights (GMBA) is proposed in this paper, in which each bat chooses different flight strategy according to its state at present. Bat in worse position choose to Lévy flight behaviors. Bat in better solution move to best solution. Moreover, when meeting the condition of the variation, The GMBA performed the Gauss mutation operation to improve the ability of the bat trapping out of the local optima. Fourteen typical experiments show that the new algorithm (GMBA) is superior than BA and LBA.

**Key words:** Bat-inspired Algorithm, Gauss mutation, Lévy flights, global optimization

**作者简介:**

杜艳艳 女, (1993-), 硕士研究生.研究方向为群智能算法、计算机应用.

刘升 (通讯作者) 男, (1966-), 博士, 教授.研究方向为计算机应用、智能计算、人工智能.E-mail: ls6601@sina.com.