

The boundedness of multilinear commutators on locally compact Vilenkin groups

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Abstract. Let G be a locally compact Vilenkin group. In this paper, the authors investigate the boundedness of multilinear commutators of fractional integral operator on Lebesgue spaces on G . Furthermore, the boundedness on Hardy spaces are also obtained in this paper.

1. Introduction

The commutators have been studied by many authors for a long time. A well known result which is discovered by Coifman, Rocherg and Weiss ([3], [6], [9]) is that the commutators $[b, T]$ of singular integral operators are bounded on some $L^p(\mathbb{R}^n)$ ($1 < p < \infty$) if and only if $b \in BMO$, where $[b, T]$ is defined by

$$[b, T]f(x) = b(x)Tf(x) - T(bf)(x).$$