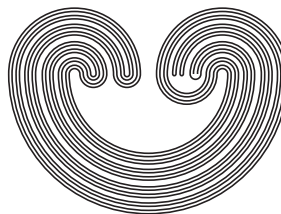


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TOPOLOGY PROCEEDINGS



Volume 54, 2019

Pages 361–369

<http://topology.nipissingu.ca/tp/>

CANONICAL PROJECTIONS OF LIE GROUPS AS EQUIVARIANT FIBRATIONS

by

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Electronically published on May 30, 2019

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ISSN: (Online) 2331-1290, (Print) 0146-4124

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AURA LUCINA KANTÚN-MONTIEL

ABSTRACT. Given a Lie group G and its compact subgroup H , we consider G as an H -space endowed with the conjugation action and prove that the quotient projection $G \rightarrow G/H$ is an equivariant H -fibration. As a consequence, every G -map $E \rightarrow G/H$ is a G -fibration.

1. INTRODUCTION

In equivariant homotopy theory, G -fibrations (the equivariant version of a Hurewicz fibration) play such an important role as Hurewicz fibrations do in usual homotopy theory.

Generally speaking, equivariant homotopy theory is well developed for the case when the acting group G is a compact Lie group. For example, one of the notable results is that if H is a closed subgroup of a compact Lie group G , then every G -map $p : E \rightarrow G/H$ is a G -fibration for any G -space E (see [12, p. 53]).

A natural question is whether this result remains valid when the acting group G is non-compact.

In [8, Theorem 5.1], it is shown that the projection $G/K \rightarrow G/H$ is a G -fibration provided that G is a compact (not necessarily Lie) group, K and H are closed subgroups of G such that $K \subset H$, and G/K is metrizable. Furthermore, in [6, Corollary 6.5], it is proved that if G is a compact metrizable group and H is its closed subgroup, then any G -map $E \rightarrow G/H$ is a G -fibration.

In this paper, the above-mentioned results are extended to the case of non-compact Lie groups. Our main results are theorems 4.2 and 4.4.

2010 *Mathematics Subject Classification.* 54C55, 54H15, 55P91.

Key words and phrases. G -ANR, G -fibration, G -space.

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