

On Equivariant Fibrations

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1 Introduction

Fibrations are useful - even pervasive - in many areas of homotopy theory. The *Hurewicz fibration* concept, i.e. the condition that a map satisfies the *covering homotopy property* or *CHP*, is versatile and frequently used. It is probably the most familiar version of the fibration idea.

Dold fibrations are maps that satisfy the *weak covering homotopy property* or *WCHP* of [D], and have important technical advantages over Hurewicz fibrations. They arise naturally when pasting procedures are used, and are invariant under *fibre homotopy equivalence* or *FHE*.

Similar remarks apply to the role of equivariant fibrations in equivariant homotopy theory. Some of the deeper questions concerning the equivariant version of Hurewicz fibrations - maps that satisfy the *equivariant covering homotopy property* or *equivariant CHP* - are dealt with in [W1] and [W2].

With suitable base spaces, the non-equivariant Dold fibration concept is equivalent to three other possible definitions of fibration ([D, Thm.6.4] and [B, Thm.6.3]), including the appropriate homotopy version of local triviality. In this paper we consider the equivariant version of Dold fibrations, i.e. maps that satisfy the *equivariant WCHP*. We extend these results of [D] and [B] to the equivariant case. Thus **we determine conditions under which five potential or possible definitions of equivariant fibration are equivalent**. These are the equivariant WCHP, three versions of the condition of being *equivariantly local homotopy trivial* or *equivariant LHT*, and the *equivariant homotopy induced property* or *equivariant HIP*. The

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