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Abstract : This thesis is concerned with the study of deformations of the natural action of a discontinuous subgroup $\Gamma \subset G$, on a homogeneous space G/H, where H stands for a closed subgroup of an Euclidean motion group $G := O_n(\mathbb{R})\times\mathbb{R}^n$. That is, we prove the following local (and global) rigidity theorem : the parameter space admits a rigid (equivalently a locally rigid) point if and only if Γ is finite. Remarkably, it happens that H turns out to be compact whenever Γ is infinite, which makes accessible the study of the corresponding parameter and deformation spaces and their topological and local geometrical features. This shows that the Calabi-Markus phenomenon occurs in this setting. That is, if H is a closed non-compact subgroup of G, then G/H does not admit a compact Clifford-Klein form, unless G/H itself is compact.

Given a deformation parameter φ, the deformed subgroup $\varphi(\Gamma)$ may fail to act properly discontinuously on G/H. To understand this phenomenon, we single out the notions of geometric and near stability for any deformation lying in the parameter space. Making use of a description of discrete subgroups of G, we accurately determine the set of stable points and that the defined stability variants hold when Γ turns out to be a crystallo-graphic subgroup of G.

We end by investigating some topological properties of the deformation space. More precisely, we give a criterion of Hausdorffness for the deformation space. And we describe it explicitly in the case of discontinuous crystallographic group for G/H. That is, the related deformation space carries a smooth structure.