DSpace@IISERMohali (/jspui/)
/ **Thesis & Dissertation (/jspui/handle/123456789/1)**
/ **Doctor of Philosophy (PhD) (/jspui/handle/123456789/268)**
/ **PhD-2014 (/jspui/handle/123456789/462)**

Please use this identifier to cite or link to this item: `http://hdl.handle.net/123456789/1568`

Title:	Group actions on Dold and Milnor manifolds
Authors:	Dey, Pinka (/jspui/browse?type=author&value=Dey%2C+Pinka)
Keywords:	Transformation groups Spectral sequences Dold manifolds Z 2 -equivariant maps
Issue Date:	Dec-2019
Publisher:	IISER Mohali

Abstract: The Dold manifold P (m, n) is the quotient of $S^m \times CP^n$ by the free involution that acts antipodally on the sphere S^m and by complex conjugation on the complex projective space CP^n. In the thesis, we investigate free actions of finite groups on products of Dold manifolds. We show that if a finite group G acts freely and mod 2 cohomologically trivially on a finite-dimensional CW-complex $\prod_{i=1}^{k} Y$ homotopy equivalent to $P(2m_i, n_i)$, then $G \sim = (Z_2)^l$ for some $l \le k$. This is achieved by first proving a similar assertion for $\prod_{i=1}^{k} Y = S^{2m_i} \times CP^{n_i}$. We also determine the possible mod 2 cohomology algebra of orbit spaces of arbitrary free involutions on Dold Manifolds, and give an application to Z_2-equivariant maps from spheres to Dold manifolds. We also study free Z_2 and S^1-actions on cohomology real and complex Milnor manifolds. A real Milnor manifold $RH_{r,s}$ is a non-singular hypersurface of degree (1, 1) in the product $RP^r \times RP^s$. A complex Milnor manifold $CH_{r,s}$ is defined analogously. We compute the mod 2 cohomology algebra of the orbit space of an arbitrary free Z_2 and S^1-action on a compact Hausdorff space with mod 2 cohomology algebra of a real or a complex Milnor manifold. As applications, we deduce some Borsuk-Ulam type results for equivariant maps between spheres and these spaces. For the complex case, we obtain a lower bound on the Schwarz genus, which further establishes the existence of coincidence points for maps from Milnor manifolds to the Euclidean plane.

URI:	http://hdl.handle.net/123456789/1568 (http://hdl.handle.net/123456789/1568)
Appears in Collections:	PhD-2014 (/jspui/handle/123456789/462)

Files in This Item:

File	Description	Size	Format

| ph14072.pdf (/jspui/bitstream/123456789/1568/3/ph14072.pdf) | 534.41 kB | Adobe PDF | View/Open (/jspui/bitstream/123456789/1568/3 |

Show full item record (/jspui/handle/123456789/1568?mode=full)

📊 (/jspui/handle/123456789/1568/statistics)

Admin Tools

Edit...

Export Item

Export (migrate) Item

Export metadata