

ABSTRACT
DIGITAL COHOMOLOGY GROUPS

Gülsele BURAK

Ph.D. Thesis, Department of Mathematics

Supervisor: Prof. Hatice KANDAMAR

2nd Supervisor: Prof. İsmet KARACA

2014, 121 pages

The goal of this study is to define simplicial relative cohomology groups of digital images and to give some examples. First of all we study the notions of digital homotopy, homology and cohomology and their applications. Then simplicial relative cohomology groups are defined and cohomology groups of some digital images are calculated. Hence simplicial cup product for digital images is defined and their properties are given. As a result of this the ring structure is determined on digital cohomology. Furthermore a method for computing the cohomology ring of digital images is given and some examples concerned determination cohomology ring of digital images are given.

Key Words

Digital simplicial homology group, digital simplicial cohomology group, digital cup product, digital cohomology ring