TOPOLOGICAL CHARACTERIZATION OF TRIVIAL COHOMOLOGY WITH SOME APPLICATIONS.

ANDRZEJ CZARNECKI

ABSTRACT. We present a simple theorem sitting between topology and homotopy theory: trivial first cohomology of a compact manifold is equivalent to some cutting properties of open sets. This can be regarded as some kind of local-to-global principle, and gives apparently new insight into topology of Euclidean spaces. We can generalize this to finite and finite type CW-complexes. Some applications to complex analysis and differential equations are also explained.

FACULTY OF MATHEMATICS AND COMPUTER SCIENCES, JAGIELLONIAN UNIVERSITY
E-mail address: `andrzejczarnecki01@gmail.com`