1072-57-55 **Alexander Dranishnikov*** (dranish@math.ufl.edu), Department of Mathematics, University of Florida, Gainesville, FL 32611-8105. *Essential manifolds and macroscopic dimension.*

The following definitions are due to Gromov.

An n-manifold M is called *rationally essential* if $im(f_*) \neq 0$ in $H_n(B\pi;\mathbb{Q})$ where $f : M \to B\pi$ is a map that classifies the universal covering of M.

A metric space X has the macroscopic dimension at most n, $\dim_{mc} X \leq n$ if there is a continuous map $g : X \to K^n$ to an n-dimensional simplicial complex and a number $b > 0$ such that $diam(g^{-1}(y)) < b$ for all $y \in K^n$.

We present a counterexample to the following conjecture of Gromov: *For every rationally essential n-manifold M the universal covering $\tilde{M}$ taken with the lifted metric should have the macroscopic dimension equal to n,* $\dim_{mc} \tilde{M} = n$. (Received June 14, 2011)