LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN
MATHEMATISCHES INSTITUT

Summer term 2018

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Topology II

Sheet 1

Exercise 1. Use Mayer-Vietoris sequence to compute the homology groups $H_i(X)$ when $X = \mathbb{R}\mathrm{P}^2$ and $X = S^n$ for all $n \geq 1$.

Exercise 2. Assuming the Seifert-van-Kampen theorem, compute the fundamental group of the following spaces:

1. $\bigvee_{i=1}^{n} S^1$
2. S^n for $n \geq 2$
3. $\mathbb{R}^3 \setminus X$ where $X = \{(x, y, 0) \in \mathbb{R}^3 |\ x^2 + y^2 = 1\}$.

Hand in: during the lecture on Monday, April 16th.