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Cellular Resolutions of Polyhedra

We shall study the Cellular Resolution Theorem which asserts that every compact 2-polyhedron P admits a cellular resolution by a fake surface Q. Under additional hypotheses on P one can improve Q to be a special 2-polyhedron. We shall see that this theorem is the best possible, i.e. one can neither weaken hypotheses on P nor strengthen conclusions about Q. We shall also discuss several interesting applications of this theorem in geometric topology and a related conjecture of Salihov.

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