



Lectures on Surfaces: (Almost) Everything You Wanted to Know About Them

By Anatole Katok, Vaughn Climenhaga

American Mathematical Society. Paperback. Book Condition: new. BRAND NEW, Lectures on Surfaces: (Almost) Everything You Wanted to Know About Them, Anatole Katok, Vaughn Climenhaga, Surfaces are among the most common and easily visualized mathematical objects, and their study brings into focus fundamental ideas, concepts, and methods from geometry, topology, complex analysis, Morse theory, and group theory. At the same time, many of those notions appear in a technically simpler and more graphic form than in their general 'natural' settings. The first, primarily expository, chapter introduces many of the principal actors - the round sphere, flat torus, Möbius strip, Klein bottle, elliptic plane, etc. - as well as various methods of describing surfaces, beginning with the traditional representation by equations in three-dimensional space, proceeding to parametric representation, and also introducing the less intuitive, but central for our purposes, representation as factor spaces. It concludes with a preliminary discussion of the metric geometry of surfaces, and the associated isometry groups. Subsequent chapters introduce fundamental mathematical structures - topological, combinatorial (piecewise linear), smooth, Riemannian (metric), and complex - in the specific context of surfaces. The focal point of the book is the Euler characteristic, which appears in many different guises and ties together concepts...



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