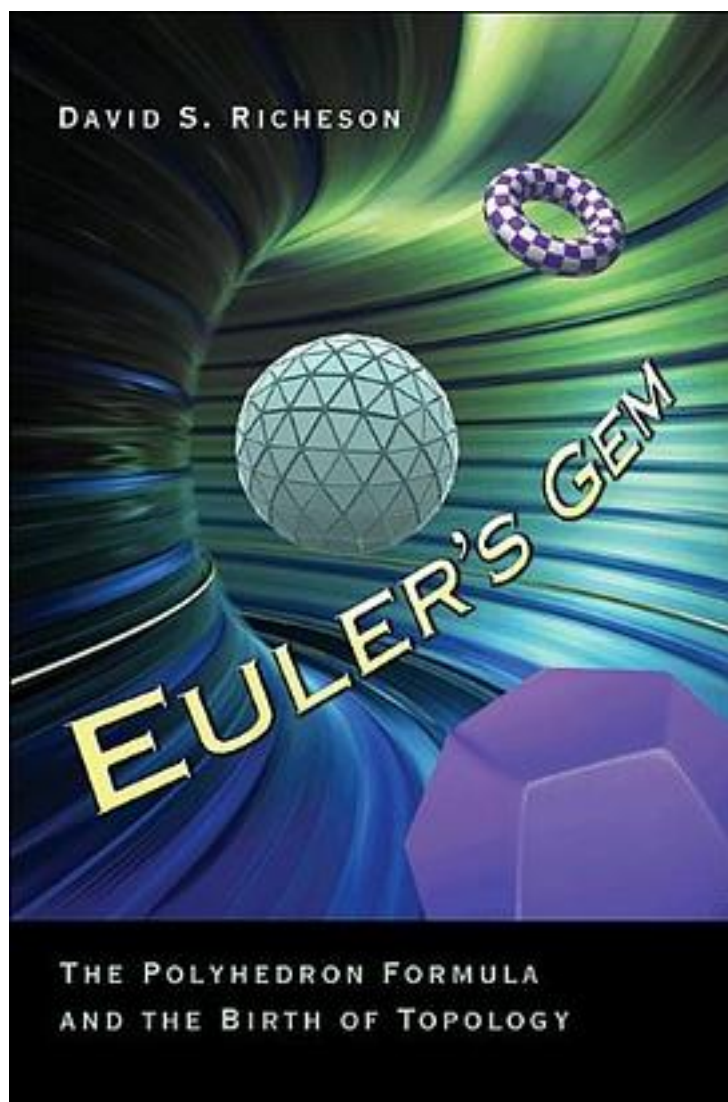# Euler's Gem

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著者:David S. Richeson

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Leonhard Euler's polyhedron formula describes the structure of many objects - from soccer balls and gemstones to Buckminster Fuller's buildings and giant all-carbon molecules. Yet Euler's formula is so simple it can be explained to a child. "Euler's Gem" tells the illuminating story of this indispensable mathematical idea. From ancient Greek geometry to today's cutting-edge research, "Euler's Gem" celebrates the discovery of Euler's beloved polyhedron formula and its far-reaching impact on topology, the study of shapes. In 1750, Euler observed that any polyhedron composed of V vertices, E edges, and F faces satisfies the equation V-E+F=2. David Richeson tells how the Greeks missed the formula entirely; how Descartes almost discovered it but fell short; how nineteenth-century mathematicians widened the formula's scope in ways that Euler never envisioned by adapting it for use with doughnut shapes, smooth surfaces, and higher dimensional shapes; and, how twentieth-century mathematicians discovered that every shape has its own Euler's formula. Using wonderful examples and numerous illustrations, Richeson presents the formula's many elegant and unexpected applications, such as showing why there is always some windless spot on earth, how to measure the acreage of a tree farm by counting trees, and how many crayons are needed to color any map. Filled with a who's who of brilliant mathematicians who questioned, refined, and contributed to a remarkable theorem's development, "Euler's Gem" will fascinate every mathematics enthusiast.

作者介绍:

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评论

很赞的科普读物，虽然很鄙视科普读物这个词。。主要讲欧拉定理（V-E+F=2那个）的历史和现实应用以及拓扑学的产生和发展。尤其喜欢数学史的部分。。

深入浅出，很赞

毕竟同调论还是太抽象，作者没法在科普书里讲透。用欧拉公式为线索把很多拓扑概念串起来是很棒的想法。

书评