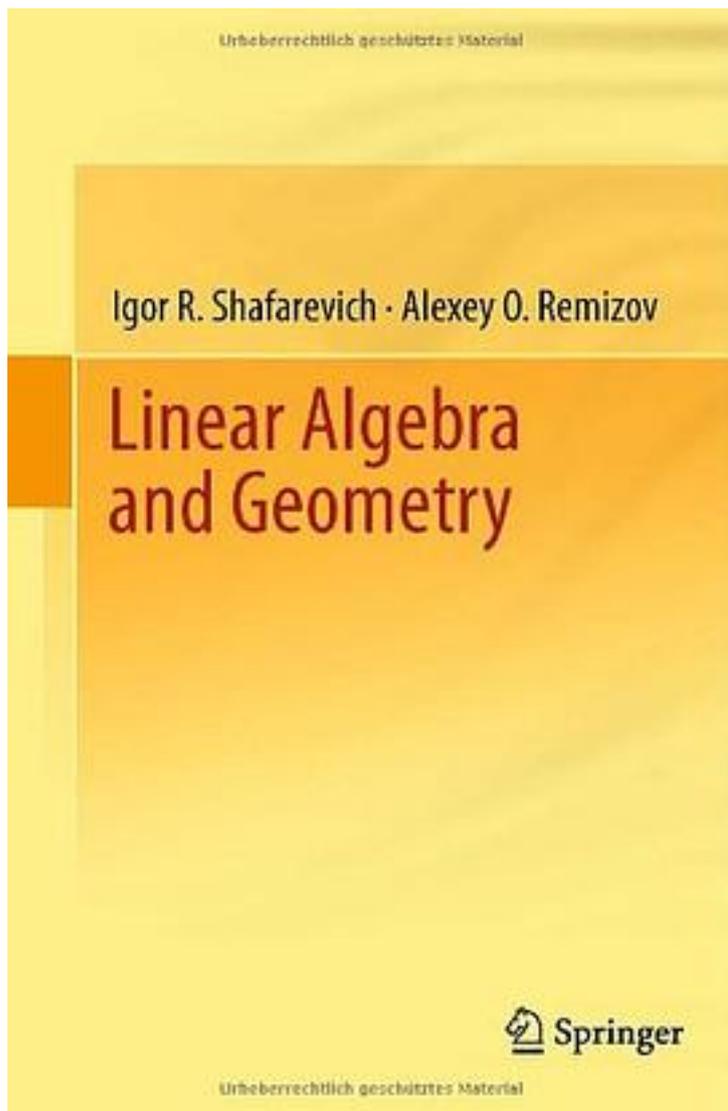


Linear Algebra and Geometry



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This book on linear algebra and geometry is based on a course given by renowned academician I.R. Shafarevich at Moscow State University. The book begins with the theory of linear algebraic equations and the basic elements of matrix theory and continues with vector spaces, linear transformations, inner product spaces, and the theory of affine and projective spaces. The book also includes some subjects that are naturally related to linear algebra but are usually not covered in such courses: exterior algebras, non-Euclidean geometry, topological properties of projective spaces, theory of quadrics (in affine and projective spaces), decomposition of finite abelian groups, and finitely generated periodic modules (similar to Jordan normal forms of linear operators). Mathematical reasoning, theorems, and concepts are illustrated with numerous examples from various fields of mathematics, including differential equations and differential geometry, as well as from mechanics and physics.

作者介绍:

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标签

线性代数

数学

Linear_Algebra

几何

Shafarevich

代数

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评论

线性代数可以从解线性方程组，矩阵计算角度来思考，另一种从几何不变量的角度思考；线性代数对于初学者的困难在于其公理化的书写和抽象语言的应用，只有经历了更多高级语言的锤炼和长期学习的经验才能克服这个困难；映射空间的逐点相加和逐点相乘构造出一个空间。他很规范的运用了很多代数的符号和语言；行列式，秩是线性映射的数值不变量；线性映射单射就是满射利用核像维数语言；双射就是行列式不等于零--反函数定理基础；投影算子偶对；向量空间= \ker 投影算子+ im 投影算子；不变量子空间定义 $f(u)$ ；自同态算子下的不变量子空间，对角化就是直和分解，幂零算子的高度和jordon分解就是幂零算子的基，幂零算子的根空间，线性函数和线性映射的区分

一贯的啰嗦

观点并不太高。但是这只说明也许这不是一本好的线代书，但却是一本好的数学书。为什么公理化线性空间？双对偶空间的定义究竟是如何操作的？这些啰嗦和唠叨把shafarevich的大脑一丝不挂的展示出来。有的书是名著，专著，比如kelly的拓扑。有的书却是苦口婆心的教材，比如Kolmogorov的泛函，朴实无华，重剑无锋。

我给的评分是“推荐”，但准确地说，只推荐给数学专业（或者数学功底强）的学习者。苏联教育系统出来的人，推式子的能力太变态了。看这帮人写的书，感觉字里行间就是“这式子这么简单我就不证了，你们自己推推完事儿”。对于非数学专业/对数学语言不那么熟悉的学习者，我推荐David Lay的Linear Algebra and Its Applications. PS：用这本书备课简直要了我的老命。

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书评

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