


Group theory

and its applications

课程信息

- 上课方式
 - 线下教学，周三/周五 第 5-6 节 (14:00 — 15:50)，费彝民楼 A-201
- 课程交流
 - 网页： yilu.me/teaching (课程讲义，作业解答)
 - QQ群：518779706 (助教交流答疑)
 - 教学立方：98NNGBEV (研究生签到、作业发布、收集批改)
- 成绩计算方式
 - 平时 40% + 期末 60%



2023秋 群论及其应用
群号：518779706

扫一扫二维码，加入群聊。

讲义及参考资料

- Greg Moore (Rutgers Physics 618) ,
 - <https://www.physics.rutgers.edu/~gmoore/618Spring2023/GTLect1-AbstractGroupTheory-2023.pdf>

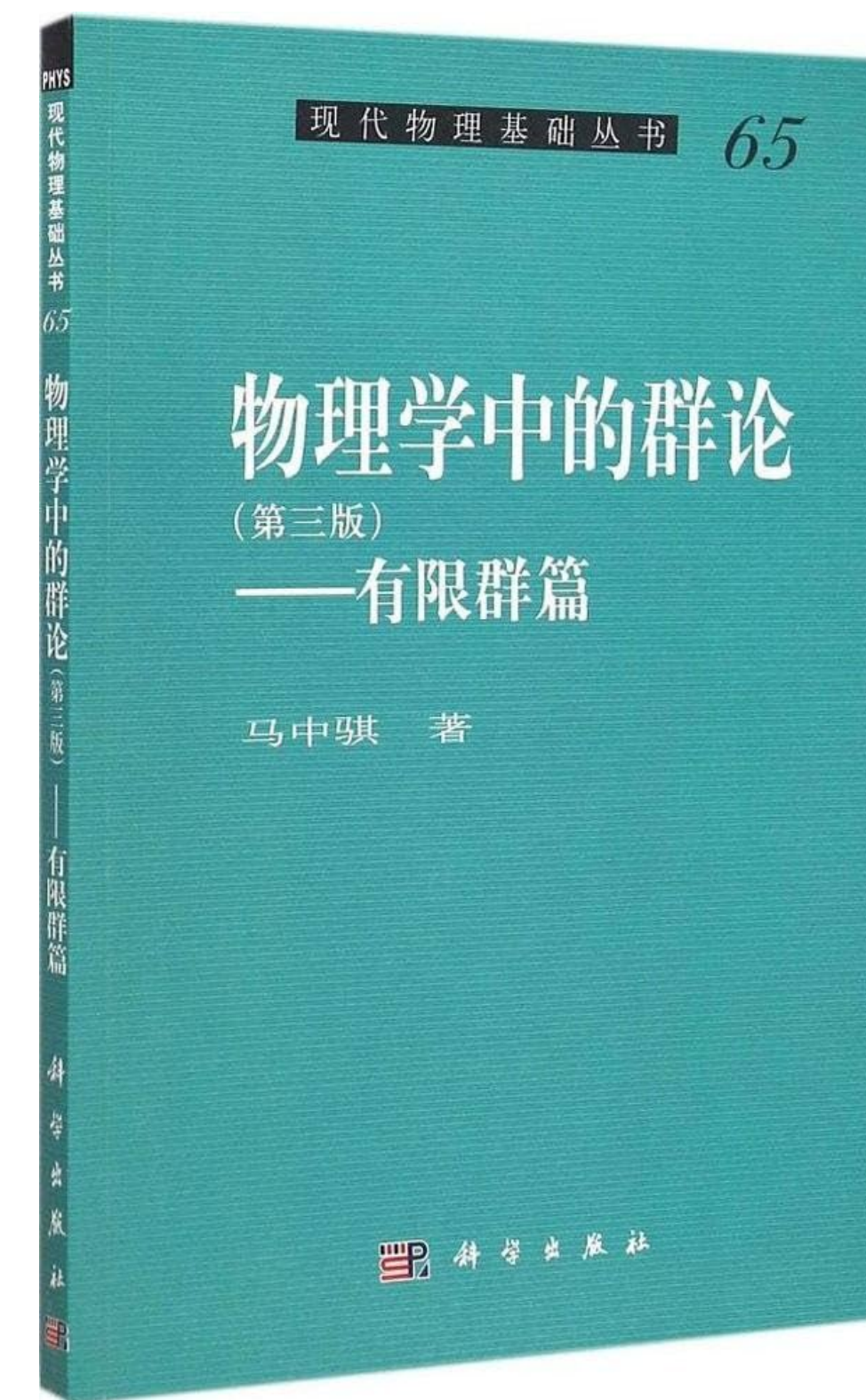
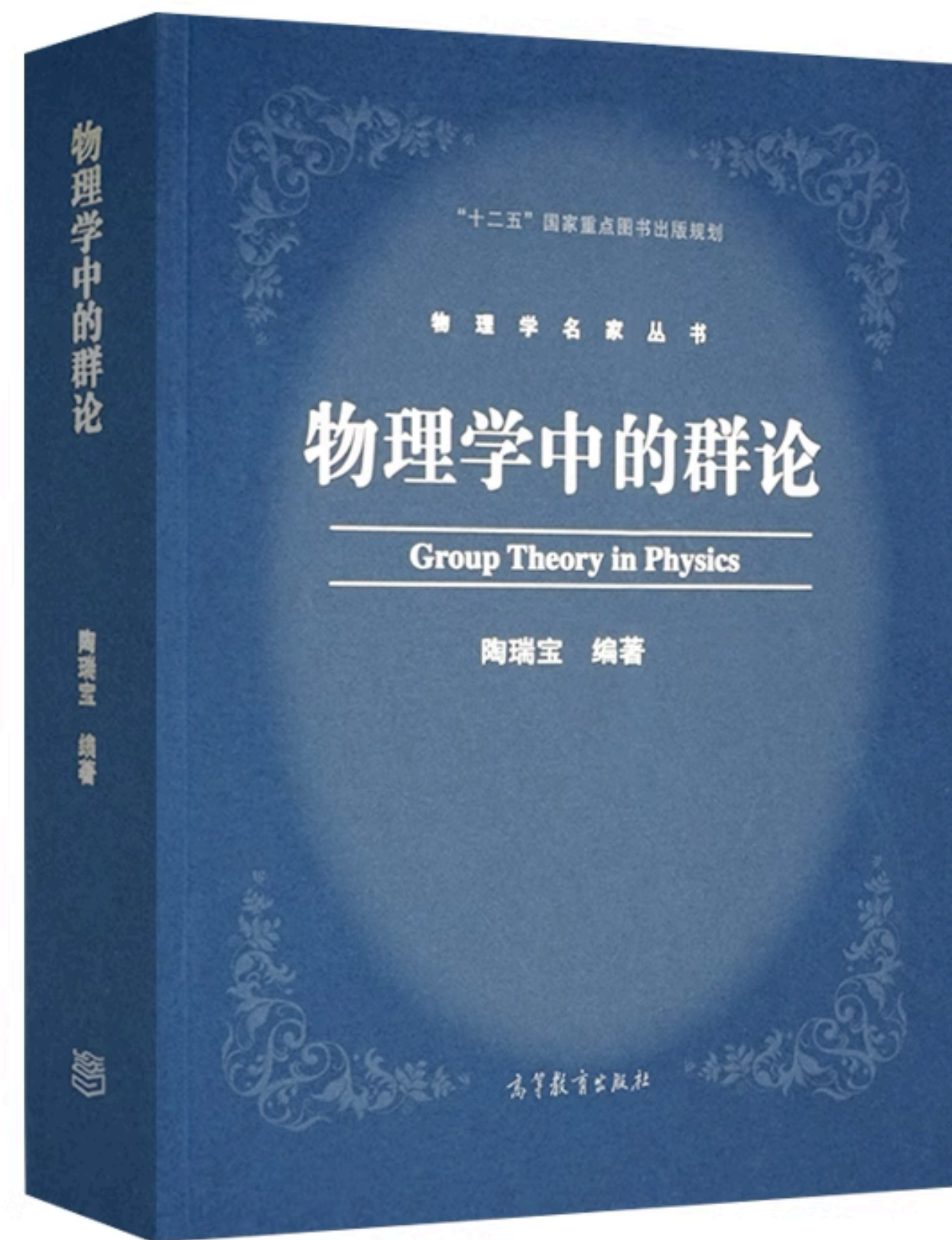
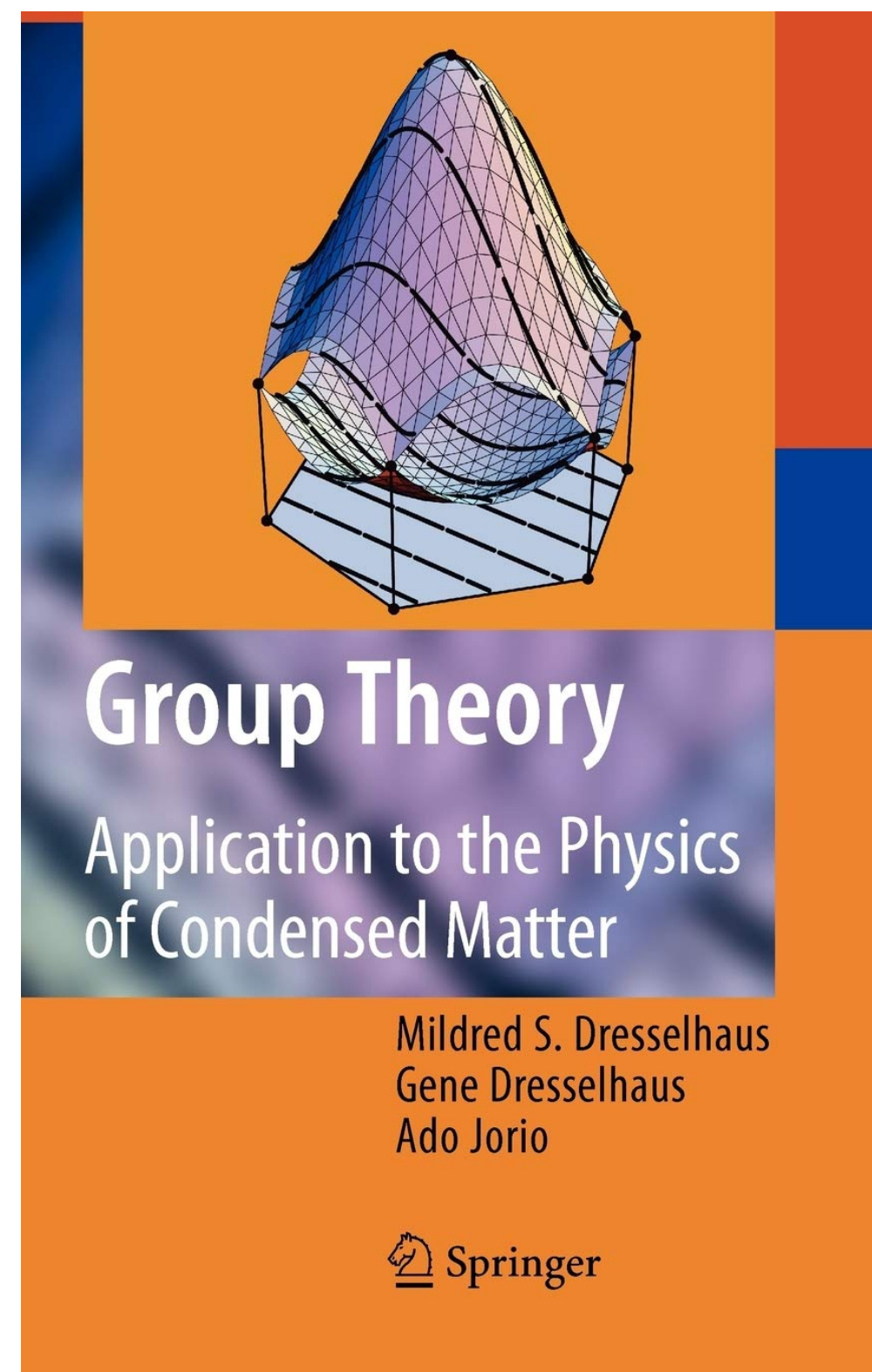
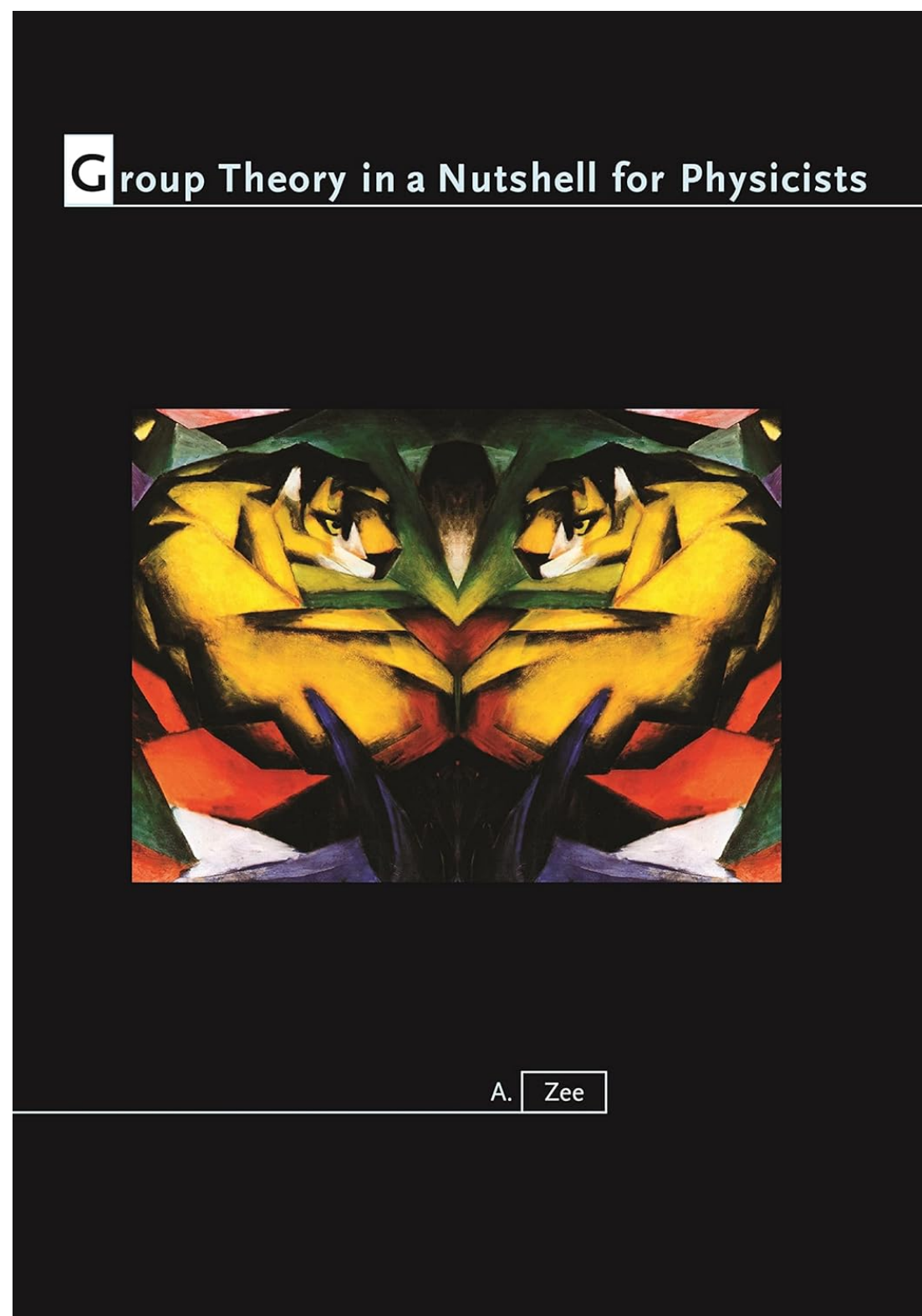
Chapter 1: Abstract Group Theory

Gregory W. Moore

ABSTRACT: Very Abstract. May 1, 2023

讲义及参考资料

- Zee, Group Theory in a Nutshell for Physicists, Princeton Univ. Press, 2016 (较简单, 适合入门)
- Dresselhaus, Dresselhaus, Jorio, Group Theory: Application to the Physics of Condensed Matter, Springer 2008 (包含较多物理应用实例)
- 陶瑞宝, 《物理学中的群论》, 高等教育出版社, 2011 (常用中文教材)
- 马中骥, 《物理学中的群论》, 科学出版社, 2006 (常用中文教材)
- 陈金全, 《群表示论的新途径》, 上海科学技术出版社, 1984 (南京大学)



Introduction

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Introduction

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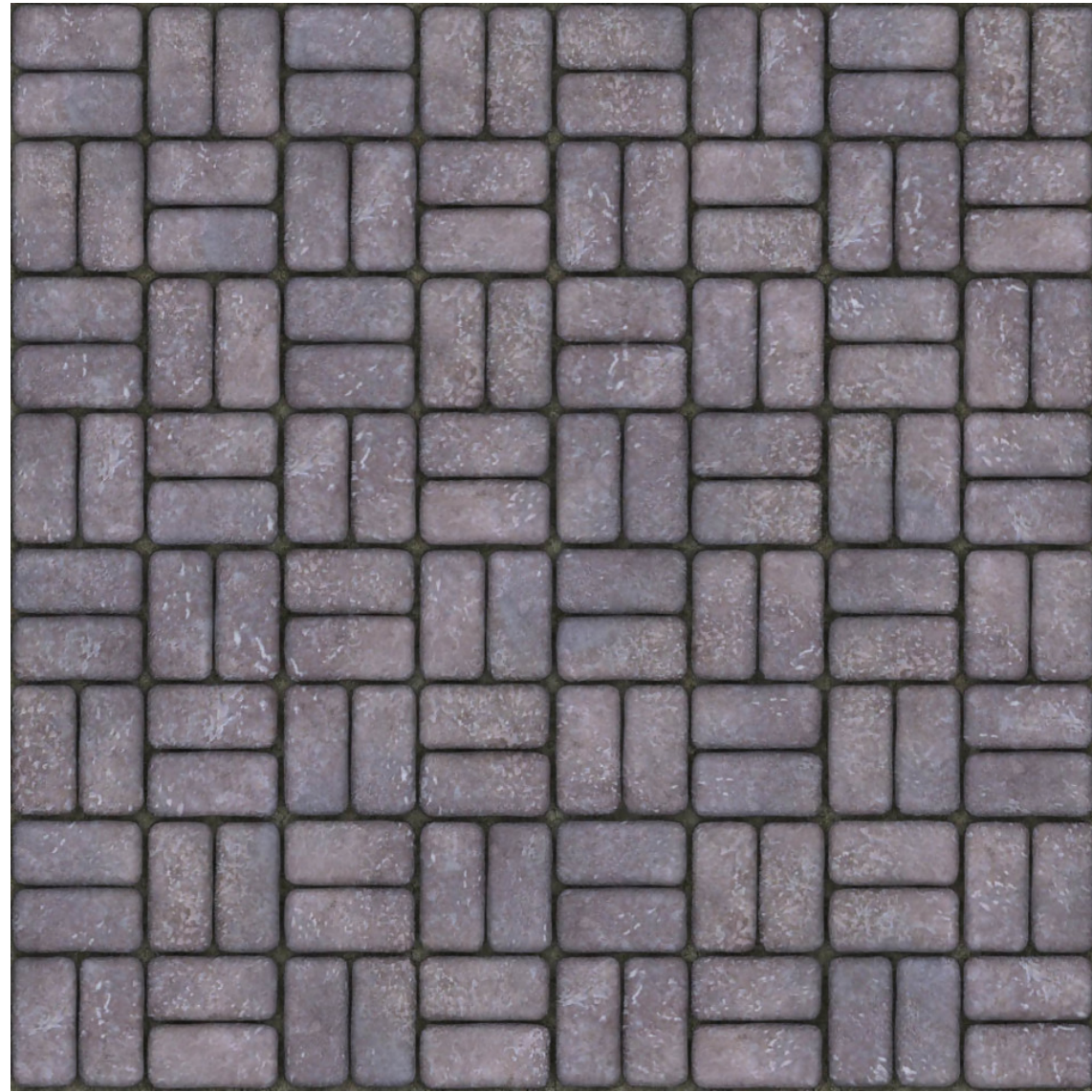


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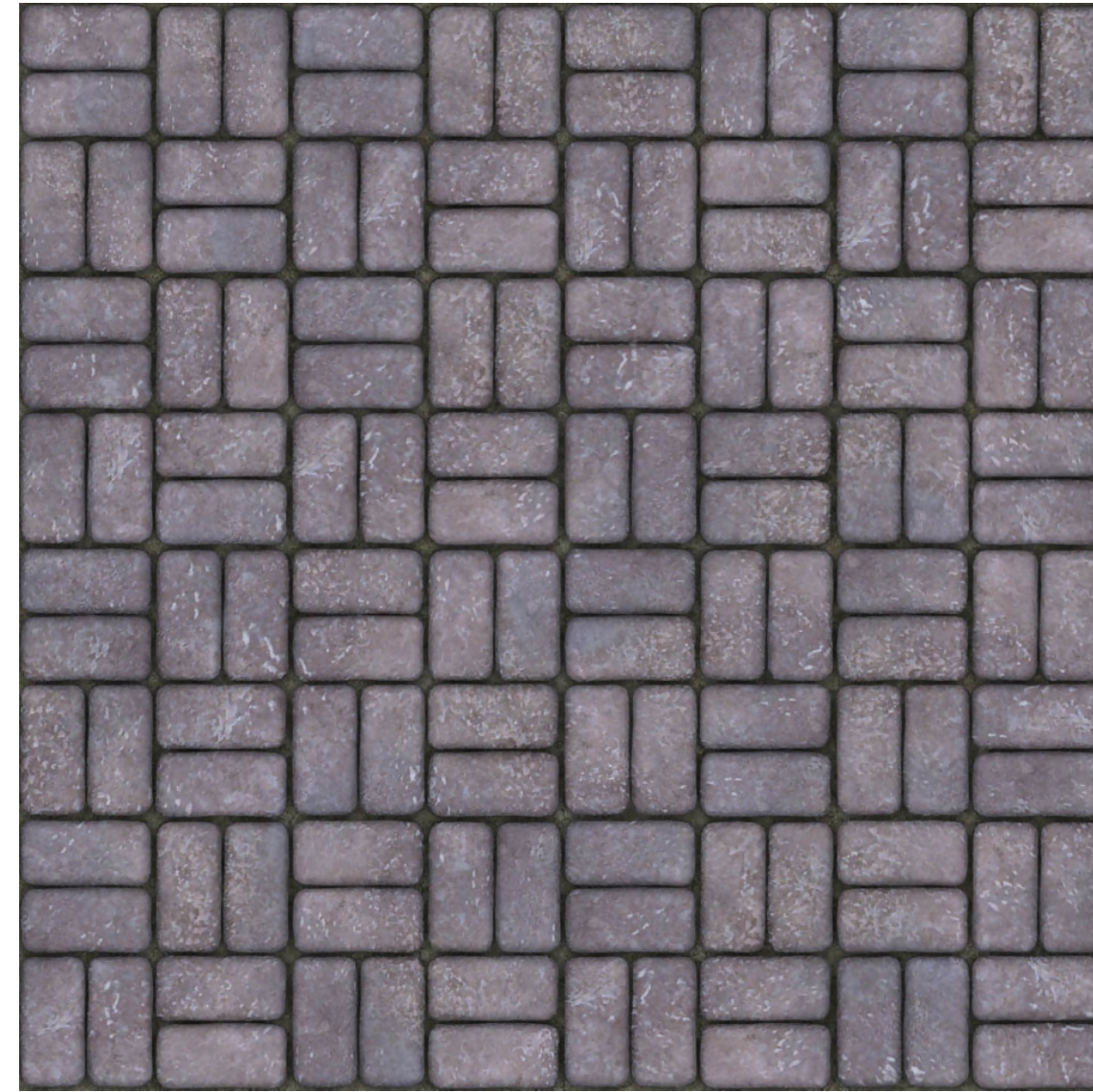


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Introduction

- Algebra: 19th century (1830s), first coined (“groupe”) by Évariste Galois when studying the solvability of polynomial equations (later Cauchy & Cayley, permutation groups)
- Geometry: Felix Klein, Erlangen program (1872), classifying geometries by their basic symmetry groups
- 杨振宁：“我今天预备跟大家提的就是好像是交响乐里头的主题旋律 thematic melody。那么如下我们想一下二十世纪的物理学里头有些什么 thematic melody 呢？那是量子化、对称跟相位因子，这三个观念的改变、演进、纠缠在一起，造成了二十世纪理论物理的主体发展。”



Galois (wikipedia)