数学笔记

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May 15, 2025

Contents

Part I

知识整理

Chapter 1

向量丛与示性类

1.1 Constructions of vector bundles

- **Tensor bundle:** Let ξ^m and η^n be two vector bundles over paracompact base space B. There are bundle maps

$$f : \xi \to \gamma^m,$$
$$g : \eta \to \gamma^n.$$

Let

$$\otimes : \mathrm{Gr}_m \times \mathrm{Gr}_n \to G_{mn}$$
$$(V_1, V_2) \mapsto V_1 \otimes V_2,$$

where $V_1, V_2 \subset \mathbb{R}^\infty, \dim V_1 = m, \dim V_2 = n$. Then $\xi \otimes \eta$ can be view as the pull-back bundle of γ^{mn} via the map

$$B \xrightarrow{\bar{f}\times\bar{g}} \mathrm{Gr}_m \times \mathrm{Gr}_n \xrightarrow{\otimes} \mathrm{Gr}_{mn}.$$

Bibliography

[1] 梅加强. 流形与几何初步. 科学出版社, 2013.