

CHAPTER IV - BASIC CONSTRUCTIONS AND EXAMPLES.

1. General setting in codimension one.

1.1. Existence of a transverse foliation. 1

1.2. Holonomy pseudogroups. 8

1.3. Appendix: One-dimensional foliations and local flows. 11

2. Topological dynamics.

2.1. The relations ρ_F and ρ_P . 15

2.2. Leaf types; minimal sets. 17

3. Foliated bundles; examples.

3.1. Topological dynamics in foliated bundles. 21

3.2. Fibre bundles arising as foliated bundles. 26

3.3. Examples. 32

4. Gluing foliations together.

4.1. Gluing together foliations tangent to the boundary. 37

4.2. Gluing together foliations transverse to the boundary. 43

5. Turbulization.

5.1. Closed transversals. 47

5.2. Turbulization along a closed transversal or along a
boundary component. 49

6. Codimension-one foliations on spheres.

6.1. Manifolds as open books. 56

6.2. Foliations on odd-dimensional spheres. 61

CHAPTER V - STRUCTURE OF CODIMENSION-ONE FOLIATIONS.1. Transverse orientability.

1.1. Transverse orientability; one- and two-sided leaves. 68

1.2. Forms and linear holonomy. 71

2. Holonomy of compact leaves.

2.1. Local diffeomorphisms of the real line. 77

2.2. Germ near a compact leaf; local stability. 81

3. Saturated open sets of compact manifolds.

3.1. Semi-proper leaves; completion of saturated open sets. 86

3.2. The structure of saturated open sets. 90

4. Centre of a compact foliated manifold; global stability.

4.1. Structure of the centre. 94

4.2. The global stability theorems of Reeb and Thurston. 97

CHAPTER VI - EXCEPTIONAL MINIMAL SETS OF COMPACT FOLIATED
MANIFOLDS; A THEOREM OF SACKSTEDER.

1. Resilient leaves. 103

2. The theorem of Denjoy-Sacksteder. 105

3. Sacksteder's theorem. 109

4. The theorem of Schwartz. 116

CHAPTER VII - ONE SIDED HOLONOMY; VANISHING CYCLES AND
CLOSED TRANSVERSALS.1. Preliminaries on one-sided holonomy and vanishing cycles. 119

2. Transverse foliations of $D^2 \times \mathbb{R}$.

2.1. Foliations with singularities on the disk. 129

2.2. One-sided holonomy in transverse foliations. 137

3. Existence of one-sided holonomy and vanishing cycles. 143

CHAPTER VIII - FOLIATIONS WITHOUT HOLONOMY.

1. Closed 1-forms without singularities.

1.1. Closed 1-forms and foliations obtained by an equivariant fibration. 151

1.2. The theorem of Tischler. 162

2. Foliations without holonomy versus equivariant fibrations.

2.1. Trivialization and global unwrapping. 166

2.2. Trivializing foliations without holonomy. 174

3. Holonomy representation and cohomology direction.

3.1. Hölder's theorem; fixed point free subgroups of $\text{Homeo}(\mathbb{R})$. 186

3.2. Foliations without holonomy and closed 1-forms. 193

CHAPTER IX - GROWTH.

1. Growth of groups, homogeneous spaces and riemannian manifolds.

1.1. Growth type of functions. 205

1.2. Growth of finitely generated groups and homogeneous spaces. 208

1.3. Growth of riemannian manifolds; application to covering spaces. 216

2. Growth of leaves in foliations on compact manifolds.

2.1. Growth of leaves in topological foliations. 224

2.2. Growth of leaves in differentiable foliations. 232

CHAPTER X - HOLONOMY INVARIANT MEASURES.

1. Invariant measures for subgroups of $\text{Homeo}(\mathbb{R})$ or $\text{Homeo}(S^1)$.

1.1. Abelianization of subgroups of $\text{Homeo}_+(\mathbb{R})$ admitting an invariant measure. 241

1.2. Diffuse measures versus Lebesgue measure; invariant measures on S^1 . 250

2. Foliations with holonomy invariant measure.

2.1. Fundamentals on holonomy invariant measures. 258

2.2. Averaging sequences and holonomy invariant measures. 265

2.3. Holonomy invariant measures for foliations of codimension one. 271

Literature 284

Glossary of notations 289

Index 291