

Contents

1.	Introduction	1
2.	The Concept of Hyperbolicity	5
2.1.	Complete hyperbolicity (Anosov systems)	5
2.2.	Definition of partial hyperbolicity	9
2.3.	Examples of partially hyperbolic systems	16
3.	The Mather Spectrum Theory	18
3.1.	Mather's spectrum of a diffeomorphism	18
3.2.	Stability of Mather's spectrum	20
3.3.	Hölder continuity	24
4.	Stable and Unstable Foliations	29
4.1.	Foliations	29
4.2.	Stable Manifold theorem. The statement	30
4.3.	The invariance equation	31
4.4.	Local stable manifold theorem	33
4.5.	Construction of global manifolds	39
4.6.	Filtrations of foliations	40
4.7.	The Inclination Lemma	41
4.8.	Structural stability of Anosov diffeomorphisms	45
5.	Central Foliations	47
5.1.	Normal hyperbolicity	47
5.2.	Local stability of normally hyperbolic manifolds	49
5.3.	Integrability of the central foliation	50
5.4.	Central foliation and normal hyperbolicity	55
5.5.	Robustness of the central foliation	55
5.6.	Weak integrability of the central foliation	62
6.	Intermediate Foliations	64
6.1.	Non-integrability of intermediate distributions	64
6.2.	Invariant families of local manifolds	65
6.3.	Insufficient smoothness of intermediate foliations	70
7.	Absolute Continuity	76
7.1.	The holonomy map	76
7.2.	Absolute continuity of local manifolds	83
7.3.	Ergodicity of Anosov maps	85
7.4.	An example of a non-absolutely continuous foliation	86
8.	Accessibility and Stable Accessibility	87
8.1.	The accessibility property	87

8.2.	Accessibility and topological transitivity	88
8.3.	Stability of accessibility I: C^1 -genericity	90
8.4.	Stability of accessibility II: particular results	99
9.	The Pugh–Shub Ergodicity Theory	107
10.	Stable Ergodicity	112
10.1.	The Pugh–Shub Stable Ergodicity Theorem	112
10.2.	Frame flows	113
10.3.	Pathological foliations	113
	References	117
	Index	121