

Contents

Introduction	ix
Chapter 1. Geometric nature of integrability	1
1.1. Foliations, contact structures and confoliations	1
1.2. Dynamics of codimension one foliations	9
1.3. Plane fields transversal to 1-dimensional bundles	13
Chapter 2. Perturbation of confoliations into contact structures	23
2.1. Linear perturbations	23
2.2. Conformally-Anosov Flows	24
2.3. Non-linear deformations	30
2.4. Approximations of foliations by contact structures	31
2.5. Perturbation near holonomy curves	31
2.6. Alternative approaches to Proposition 2.5.1	36
2.7. Transitive confoliations	37
2.8. Propagation of the perturbation along the leaves	40
2.9. Discussion	43
Chapter 3. Taut vs. Tight	45
3.1. Tight contact structures and taut foliations	45
3.2. Symplectic filling	46
3.3. The inequality	48
3.4. Contact geometry of planes in the standard contact \mathbb{R}^4	51
3.5. Tight and Taut confoliations	55
3.6. Homotopy of confoliations	62
3.7. A few open problems about confoliations	63