Contents

I Fundamentals of Intrinsic Geodesy 1

1 From Classical Geodesy to Geodesy in Three Dimensions (1959) 3
2 Foundations of Intrinsic Geodesy (1951) 13
Introduction 13
A Absolute Approach 16
B Local Astronomical Approach 23
C Local and General Geodetic Approach 29
D Applications 48
3 Generalized Legendre Expansions for Any Curve Whatever, Traced Out Upon Any Surface Whatever (1950) 59
4 Generalized Legendre Expansions in Space (1950) . . 66
5 Generalized Legendre Expansions for Any Curve Whatever in Space (1950) 70
6 The Tidal Field of a Planet and the Related Intrinsic Reference Systems (1979) 75
1 The Gravity Field 75
2 The Tidal Field 75
3 The Cardinal and the Canonical Triads 76
4 The Tidal Triad 77
5 The Centrifugal Field 79
6 Reference Frames; Ricci's Coefficients 80
7 The Cardinal Frames 81
8 The Canonical Frame 82
9 The Tidal Frame 83

II Structure of the Gravity Field and Laplace's Equation . 85

1 On the Curvature and Torsion of the Gravity Field (1952) 87
2 Generalization of Dalby's Theorem for Any Surface Whatever (1952) 92

Bibliografische Informationen
http://d-nb.info/850277701

digitalisiert durch DEUTSCHE NATIONAL BIBLIOTHEK

III Principles of Intrinsic Geodesy Applied to the Normal Reference Field 99

1 Principles of Intrinsic Geodesy Applied to the Field of Somigliana (1950) 101
2 The First Fundamental Problem of Geodesy Developed for the Field of Somigliana (1950) 109
3 Differential Parameters in the Normal Gravity Field (1980) 118

IV Mapping of the Actual Gravity Field onto the Normal Reference Field 123

1 On the Representation of the Geoid on the Ellipsoid (1951) 125
2 Some Remarks on the Use of Conformal Representations in Three-Dimensional Geodesy (1967) 131
3 On the Three-Dimensional Computation of Geodetic Networks and Anomalies (1973) 135
4 The Adjustment of Geodetic Networks in the Three-Dimensional Ellipsoidal Model Space of Somigliana (1981) 142

V Mapping Between Surfaces 147

1 Some Integral Properties of the Conformal Representations of Surfaces on Surfaces (1951) 149
2 The a Priori Determination of the Modulus of Linear Deformation in the Gauss Conformal Representation (1951) 153
3 Representations Between Surfaces Defined by Means of the Quadratic Form Which Determines Their Modulus of Deformation (1957) 157

VI Propagation of Light in Continuous Isotropic Refracting Media 167

1 An Analogy Between the Laws of Propagation of Light in Continuous Isotropic Refracting Media and Conformal Representations (1953) 169
2 The Torsion of a Ray of Light in a Continuous Isotropic Refracting Medium (1953) 173

VII Posthumous Work 177

The Motion of a Free Particle and of a Spherical Pendulum in the Microgravitational Field of a Gravitationally Stabilized Satellite in Circular Orbit in a Central Field (A. Marussi and C. Chiaruttini) 179

Appendix. Notations of Vector Analysis – the Vectorial Homographies of Burali-Forti and Marcolongo (W. I. Reilly) 190
Bibliography of Prof. A. Marussi 196
Index of Abbreviations (H. Hornik) 203
Antonio Marussi: 1908–1984 A Personal History (H. Moritz) 205
Name Index 209
Subject Index 211