Foreword

This book consists of a series of essays on non-Euclidean geometry in a broad sense, including the classical geometries of constant curvature (spherical and hyperbolic), but also de Sitter, anti-de Sitter, co-Euclidean, co-Minkowski, Hermitian geometries, and some others. A few central themes emerge from these essays, namely, trigonometry, convexity, rigidity, area, volume, and the relation between non-Euclidean geometry and projective geometry, in particular the connection with conics, quadrics and quadratic forms. Some essays deal with very classical questions and others address problems that are at the heart of present day research, but all of them are concerned with fundamental topics.

The reader will see that the various essays contain many references to old mathematical texts. This is a result of the fact that geometry is a rich world which is built up on a socle of knowledge acquired through the effort of many generations. For the authors of this foreword, reading primary sources has always been a rewarding activity: it is in these original texts that one can find the most profound ideas that dominate modern research.

Although the topics considered in the various essays that constitute this volume are interconnected, the essays are completely self-contained. They vary in terms of length and difficulty. Sometimes, the same topic is treated in more than one of them, with more or less details, but the points of view are often different. The essays should be useful to researchers and students of non-Euclidean geometry. They are intended to be references for the various topics they present.

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