Chapter 1

Introduction

The classification of finite simple groups is one of the foundational problems in group theory, and central to this problem is the study of finite Lie groups. Jacques Tits introduced and developed the theory of buildings in the 1950's and 1960's as a way to study and classify these groups. In the 1980's, these ideas were extended by Tits and Mark Ronan to study Kac-Moody groups, with the introduction of twin buildings. Kac-Moody groups can be described by some group functor $\mathcal{G}$ and a field k, which give the Kac-Moody group $\mathcal{G}(k)$. These groups act as an infinite dimensional analogy of semisimple Lie groups and share many nice properties.

All of the motivating examples in the previous paragraph can be generalized with the notion of RGD systems and Moufang twin buildings.