

1. Coxeter Groups and Coxeter Complexes

1.1 Coxeter Systems

1.2 Length Function and M-Operations

1.3 Coxeter Complexes

1.4 Roots

2. Buildings

2.1 Simplicial Buildings

2.2 Spherical Buildings

2.3 W-Metric Buildings

2.4 Group Actions on Buildings

2.4.1. Weyl Transitive Actions

2.4.2. Strongly Transitive Actions

2.4.3. BN Pairs

2.4.4. Root Groups

3. Twin Buildings

3.1 Definition

3.2 Group Actions on Twin Buildings

3.3 Twin BN-Pairs

3.4 Root Groups

3.5 Moufang

3.6 RGD Systems

3.7 Kac-Moody Groups

3.7.1. Kac-Moody over \mathbb{C}

3.7.2. Generalization to arbitrary fields

3.7.3. RGD Structure

4. General Theory about Finite Generation

4.1 Exceptional rank 2 cases

4.2 Local isomorphisms of links

4.3 Presentation of \mathcal{U}

4.4 Finite generation results

5. Conditions for Infinite Generation

5.1 Construction of extension homomorphisms $\tilde{\phi}_v$

- 5.2 Existence of $\tilde{\phi}_v$
- 5.3 Choices of v and construction of \mathcal{D}
- 6. Cases where \mathcal{U} is not finitely generated
 - 6.1 Cases where \mathcal{D} is infinite
 - 6.2 336 over \mathbb{F}_2
- 7. Cases where \mathcal{U} is finitely generated
 - 7.1 Definition of root distances
 - 7.2 334 over \mathbb{F}_2
 - 7.3 336 over \mathbb{F}_3
- 8. Cases with a 2
 - 8.1 246
 - 8.2 266
 - 8.3 Not sure if they will work, but going to try