

Spring 2026 Seminar on Kac–Moody Lie Algebras

Organized by students

Saturdays, 19:00–21:30
Room 233B, Taizhou Building

| Date | Speaker | Content |
|--------|---------|--|
| Mar 21 | Kanghe | Definitions and first properties – [K, §1.1–1.4] |
| Mar 28 | Huimin | Triangular decomposition, root spaces, Chevalley involution – [K, §1.5–1.8] |
| Apr 04 | Binhe | Invariant bilinear form: construction and properties – [K, §2.1–2.4] |
| Apr 11 | Yiliang | Casimir operator; integrable modules – [K, §2.5–2.8] |
| Apr 18 | Huimin | Weyl group: definitions, local nilpotency, fundamental reflections – [K, §3.1–3.4] |
| Apr 25 | Binhe | Weyl group geometry, Tits cone – [K, §3.5–3.9] |
| May 02 | Binhe | Weyl groups and Classification of GCM – [K, §3.10–4.1] |
| May 09 | Yiliang | Real and imaginary roots – [K, §5.0–5.7] |
| May 16 | Yiliang | Real and imaginary roots – [K, §5.0–5.7] |
| May 23 | Huimin | Real and imaginary roots – [K, §5.7–5.10] |
| May 30 | Binhe | Affine algebras, the normalized invariant forms and root systems – [K, §6.1–6.4] |
| Jun 06 | Huimin | The Weyl groups of affine algebras – [K, §6.4–6.7] |
| Jun 13 | Yiliang | Loop realization – [K, §7.1–7.6] |
| Jun 20 | Binhe | Highest weight theory of Kac-Moody algebras – [K, §9.1–9.7] |
| Jun 27 | Binhe | Highest weight theory of Kac-Moody algebras – [K, §9.8–9.15] |

Main references

- [K] Kac, V. G., *Infinite-Dimensional Lie Algebras*, 3rd ed., Cambridge University Press, 1990.
- [C] Carter, R. W., *Lie Algebras of Finite and Affine Type*, Cambridge University Press, 2005.