

WRITTEN SUMMARY #?

A MAT 477 STUDENT

Presentation Date: September 5, 2019

Presentation Title: Overview

Speaker: Ila Varma

SUMMARY

The main goal of this lecture was to summarize the presentations for the semester. We begin with Gauss composition of binary quadratic forms as described in [S].

Definition 1. A binary quadratic form $f(x, y)$ over a ring R is a homogeneous polynomial of degree two in two variables. In other words, $f(x, y)$ is a binary quadratic form if and only if

$$f(x, y) = ax^2 + bxy + cy^2$$

where $a, b, c \in R$.

There is a natural action of $\mathrm{GL}_2(\mathbb{Z})$ on the space of binary quadratic forms over \mathbb{Z} ...

REFERENCES

- [HCL1] M. Bhargava, “Higher composition laws I: A new view on Gauss composition and quadratic generalizations,” *Ann. of Math.* **159** (2004), no. 1, 217–250.
- [S] F. Seguin, “Composition of binary quadratic forms: understanding the approaches of Gauss, Dirichlet, and Bhargava,” to appear in *Resonance Journal*.