

Boğaziçi MATH COLLOQUIUM

Recent Developments in Invariant Theory

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Abstract:

Let G be a finite group and V be a finite dimensional representation of G over field \mathbb{F} . The invariant theory studies the structure and properties of

$$\mathbb{F}[V]^G = \{f \in \mathbb{F}[V] \mid \sigma \cdot f = f, \forall \sigma \in G\}.$$

Invariant theory has many applications in various fields, such as but not limited to, computer vision, material science, geometric classification, molecular dynamics, equivariant dynamical systems, and symmetric differential equations, coding theory, cohomology.

In this talk, first, we will survey some important results from Gordan (1868), Hilbert (1888), Noether (1915, 1926), Weyl (1939) to Richman (1996), Fleischmann-Fogarty (2000), Derksen and Kemper (2003).

In the second part of the talk, we will introduce a new approach to the theory. The work under progress is supported in part by TÜBİTAK, Project No: 114F059.

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