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Present research:

I am interested in representation theory of reductive groups and related algebras such as Lie algebras and Hecke algebras. A reductive group is an important type of linear algebraic group and it includes general linear groups, special orthogonal groups and symplectic groups. One of the features of reductive groups is that the structure is described by the root system which is a combinatorial object. Reductive groups have rich representation theory and it is very interesting.

Representation theory depends on the field of definition of the reductive group and the coefficient field of representations. I am studying representation theory of p-adic reductive groups and also algebraic representations of reductive groups.

Notice for the students:

You have to know linear algebra and fundamental things of algebra. Understanding representation theory of finite groups (such as Maschke's theorem, character theory) is also necessary.

A fundamental model of representation theory of reductive groups is a structure theory of complex semisimple Lie algebras and finite dimensional representation theory, such as classification theory of complex semisimple Lie algebras via root system, highest weight theory and Weyl's character formula. These are required to study representation theory. It is also better to know representation theory of compact Lie group or theory of algebraic representations of reductive groups. If you know representation theory of some objects related to root systems (real reductive Lie group, p-adic reductive group, finite simple group of Lie type, Kac-Moody Lie algebra, quantum group, Weyl group, Hecke algebra), you can go further based on it.

In representation theory, it often happens that there are several ways to attack a problem. I recommend to study actively what you are interested in.