

April 9: David Vogan (MIT), “Root data and group homomorphisms”

Grothendieck showed that compact connected Lie groups are classified precisely by combinatorial objects called “root data.” (Perhaps more importantly—at any rate for Grothendieck—these same root data classify reductive groups over any algebraically closed field.) Grothendieck’s construction of the root datum from a compact group is simple and natural, but nevertheless it has never been made “functorial”: there is no combinatorial notion of “morphism” between root data that corresponds precisely to morphisms between compact groups. I will propose a notion of root datum morphism, show that a compact group morphism gives a root datum morphism, and offer almost no evidence at all in support of the conjectural converse.