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Finding Subalgebras of Real Semisimple Lie Algebras

In the 1950's, Tits gave a Bourbaki seminar talk wherein he presented a complete classification of subalgebras of compact real Lie algebras. One of the central ideas in the classification, regularity, showed that compact Lie algebras have very rigid subalgebra structure. Continuing this line of inquiry, we shall describe techniques to exploit the rigid structure for compact Lie algebras to identify and classify subalgebras in the non-compact case, using the split real form G_2 as an example.