

Roots of $SO(2n)$

Consider $so(2n, C)$. Its dimension is equal to $n(2n - 1)$. Consider generators M_{pq} ($p < q$). (One can consider $M_{ik} = x^i \partial_k - x^k \partial_i$, or $M_{ik} = E_{ik} - E_{ki}$)
Commutation rules are:

$$[M_{ik}, M_{rs}] = M_{is} \delta_{kr} - M_{ir} \delta_{ks} - M_{rk} \delta_{is} + M_{rk} \delta_{is}$$