

Rob Wilson: *The small Ree groups revisited*

A construction of the small Ree groups from 7 coordinates labelled by 0 and the complex 6th roots of unity, using a dot product, a cross product, and a star product. The dot/scalar/inner product is defined by pairs of labels adding to zero, and the cross/vector/outer product is defined by triples of labels adding to zero. The star product is defined by pairs of labels adding to a complex number of absolute value 3. There are $q^3 + 1$ points P defined by $P = P * x$, on which the automorphism group acts 2-transitively. The stabilizer of two distinct points is a diagonal matrix determined by one non-zero scalar. Hence the group has order $(q^3 + 1)q^3(q - 1)$.