Table S3. A set of updated *RNnn* symmetries as reported in Table 12 of Levitt 200234. The symmetries allow the selection of homonuclear J-couplings {l,m,l,m} = {0,0,0,0} with suppression of all other homonuclear DD terms, CSA terms, and isotropic shift terms. All inequivalent solutions in the range 2 ≤ N ≤ 20, 1 ≤ n ≤ 10, and 0 ≤ n ≤ N/2 are shown. Those symmetries that not found in the literature34 with n >5, are shown in ***bold italics****.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| R610 | R810 | R1010 | R1210 | R1213 | R1410 | R1414 | R1610 | R1613 | R1613 |
| R1614 | R1615 | R1810 | R1813 | R1814 | R1815 | R1816 | R2010 | R2013 | R2014 |
| R2015 | R2016 | R2017 | R620 | R1020 | R1223 | R1420 | R1623 | R1625 | R1820 |
| R1823 | R1826 | R2023 | R2025 | R2027 | R830 | R1030 | R1430 | R1432 | R1435 |
| R1630 | R1631 | R1634 | R1637 | R1831 | R1832 | R1834 | R1835 | R1837 | R1838 |
| R2030 | R2031 | R2032 | R2035 | R2037 | R2038 | R2039 | R640 | R1040 | R1241 |
| R1243 | R1245 | R1440 | R1840 | R1843 | R1846 | R2041 | R2043 | R2045 | R2047 |
| R2049 | R650 | R850 | R1250 | R1253 | R1450 | R1451 | R1456 | R1650 | R1654 |
| R1657 | R1850 | R1852 | R1853 | R1856 | R1857 | ***R1060*** | ***R1460*** | ***R1661*** | ***R1667*** |
| ***R1861*** | ***R1862*** | ***R1864*** | ***R1865*** | ***R1867*** | ***R1868*** | ***R2061*** | ***R2065*** | ***R2069*** | ***R670*** |
| ***R870*** | ***R1070*** | ***R1270*** | ***R1273*** | ***R1670*** | ***R1673*** | ***R1674*** | ***R1675*** | ***R1870*** | ***R1871*** |
| ***R1873*** | ***R1876*** | ***R1878*** | ***R2070*** | ***R2071*** | ***R2072*** | ***R2075*** | ***R2078*** | ***R2079*** | ***R680*** |
| ***R1080*** | ***R1281*** | ***R1283*** | ***R1285*** | ***R1480*** | ***R1880*** | ***R1883*** | ***R1886*** | ***R2081*** | ***R2083*** |
| ***R2085*** | ***R2087*** | ***R2089*** | ***R890*** | ***R1090*** | ***R1490*** | ***R1491*** | ***R1496*** | ***R1690*** | ***R1693*** |
| ***R1694*** | ***R1695*** | ***R2090*** | ***R2093*** | ***R2094*** | ***R2095*** | ***R2096*** | ***R2097*** | ***R6100*** | ***R12103*** |
| ***R14100*** | ***R16101*** | ***R16107*** | ***R18100*** | ***R18103*** | ***R18106*** |  |  |  |  |