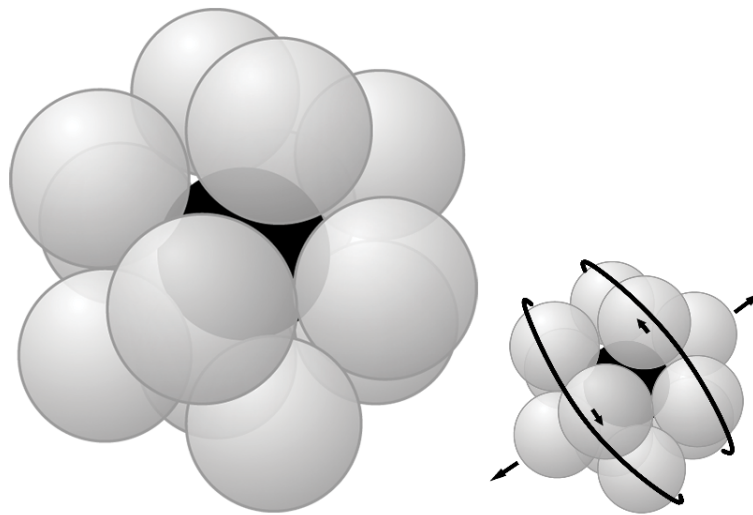


Sporadic Twists



Twelve unit spheres are situated around a central unit ball with wiggle room between them. Each sphere is surrounded by a ring of five other spheres, followed by another ring of five beyond that, and then one final sphere on the opposite side. (In other words, arranged as an icosahedron.)



A **twist** consists of a simultaneous one-fifth turn of two neighboring five-sphere rings in opposite directions. (See above picture.)

Problem. Explain why it is possible to move any pair of spheres to any other pair of sphere positions using a sequence of twists.



Submit your solution online by scanning QR code and filling out the form, or submit at

sites.google.com/unomaha.edu/unopow

A photo of handwritten work is fine. You can also turn in solutions physically at the UNO math department's mail room (located on the second floor of the Durham Science Center).