1154-K1-122 **Anduriel Widmark*** (anduriel@andurielstudios.com), Denver, CO 80211. *Design Principles of Hexastix and Related Homogeneous Cubic Cylinder Rod Packings.*

Hexastix and Tetrastix are periodic non-intersecting arrangements of cylinder packings. Some basic arrangements of congruent cylinder packings that are restricted to only three and four directions are described. The design and construction of intricate models is illustrated using simple and economic tubular building materials. Complex structures are produced from line segments that are tensioned into parallel groups with rubber bands. Many of these packing constructions provide a variety of options in the way of coloration, shape, and structure, that allow for creativity and innovation. Interesting combinations can be made and used to highlight a variety of geometric problems such as; calculating packing density, intersecting prisms to create polyhedrons, and relationships to crystal structures. These intricate geometric forms present a challenging assembly, even after you understand the space filling structures. Building these sculptures and models is a fun way to get creative and use mathematics to explore symmetry and build spatial intuition. (Received August 10, 2019)