1047-51-84   **George Francis*** (`gfrancis@uiuc.edu`), George Francis, Altgeld Hall, 1409 W Green St, Urbana, IL 61801, and **Tony Robbin** (`TonyRobbin@att.net`), 1283 South Gilboa Road, Gilboa, NY 12076. *Virtual installations of quasicrystalline structures in 3-space.* Preliminary report.

Nearly three decades ago, DeBruijn proposed two methods for generating quasicrystals as injective projections of 3D sublattices of the 6D unit lattice. Such a packing of space by rhombohedra is the 3D analog of a planar tiling by rhombi, as popularized by Penrose, Conway et al. The packing is quasicrystalline (Steinhardt) if it displays icosahedral symmetry locally, but is aperiodic globally. In this collaboration of an artist and a mathematician, we develop a tool for constructing arbitrarily large virtual quasicrystalline installations in fully immersive virtual environments, such as the Cube and the CAVE. Preliminary work by a succession of REU students have demonstrated the feasibility and difficulty of this project. We report on current progress. [With Matt Gregory and Geoff Ehrman] (Received January 17, 2009)

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