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Applications of the Sierpiński Triangle to Music Composition. Preliminary report.

The present paper builds on the idea of composing music via fractals, specifically the Sierpiński Triangle and Sierpiński Pedal Triangle. The resulting methods intend to produce not just a series of random notes, but a series that pleases the ear. One such method is a geometric composition system with the configuration of the Sierpiński Triangle to generate a string of notes or chords. Other methods include a bottom-up composition technique of designing a piece of music around three notes and distributing this pattern throughout various levels of the music. A counterpart top-down approach utilizes the iterative process of generating the Sierpiński Triangle and Sierpiński Pedal Triangle via matrix multiplication by applying this process to music composition. This technique designs the largest components of the musical work first, then creates subsequent layers with each layer adding more detail. The effect is to perform Schenkerian Analysis in reverse order to compose music. (Received January 15, 2016)