1135-F1-2025 **Anil Venkatesh*** (anilvenkatesh@ferris.edu). *Symmetric Substructures in Musical 12-Tone Rows.* Preliminary report.

In music, a 12-tone row is any of the 12! possible orderings of notes in the Western chromatic scale. The musical notes of a 12-tone composition must always arise in the same order, cycling repeatedly through a predetermined "row" of twelve notes. The repetitive structure of 12-tone music lends itself to mathematical study. In 2003, Hunter and von Hippel investigated symmetry in 12-tone rows, using group theory to enumerate equivalence classes of rows under a group of music-theoretic symmetries. They found that highly symmetric rows constitute just 0.13% of the 12! possibilities, and yet these rows arise in 20% of actual compositions. While this result clearly indicates that composers prefer symmetric rows, a mathematical motivation for the remaining 80% of 12-tone compositions has not yet been found. While Hunter and von Hippel worked on the level of entire 12-note sequences, the human ear is also sensitive to shorter repetitions and symmetries. In this talk, we argue that an investigation of these symmetric substructures of 12-tone rows may lead to a more complete account of the aesthetics of composition. (Received September 25, 2017)