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Anil Venkatesh* (avenkatesh@adelphi.edu) and **Viren Sachdev**. *Internal Symmetries in Musical 12-Tone Rows*.

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 10% of actual compositions. In a previous talk, we conjectured that the remaining 90% of 12-tone compositions, while not entirely self-symmetric, might contain shorter repetitions and symmetries that were intuitively attractive to the composers. In this talk, we introduce a way to measure the occurrence of short repetitions and symmetries that go undetected in the analysis of Hunter and von Hippel. We present a new hierarchy of symmetry for 12-tone rows and show that composers favor symmetric substructures in their work. (Received September 12, 2020)