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Rachel Wells Hall* (rhall@sju.edu), Department of Mathematics, Saint Joseph's University, Philadelphia, PA 19131. *A Mathematician's Guide to Research in Mathematical Music Theory*.

Music theorists have used mathematics to solve musical problems for centuries. Mathematicians, too, have investigated musical questions. Some composers have turned to mathematics for inspiration. However, there has been a significant disconnect between these two fields since the eighteenth century. Mathematical music theory—a field still in its infancy—uses mathematics to describe and analyze musical structures such as rhythms, scales, chords, and melodies. In the past twenty-five years, questions have emerged in mathematical music theory that are appealing, nontrivial, and, in several cases, connected to other scientific fields. This talk aims to interpret current research in music theory in a manner that is accessible to mathematicians and to relate problems in music theory to questions that arise in diverse mathematical fields, including combinatorics, group theory, geometry, optimization, and category theory. (Received September 13, 2010)