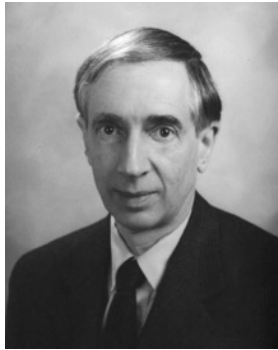


**Texas State University**  
**Department of Mathematics Colloquium**  
Friday, February 19, 2021  
3:30pm on Zoom

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## ***A Survey of Plane Tilings***



**Richard P. Stanley**  
MIT/University of Miami

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*Abstract:* A “tiling” of a region  $R$  in the plane is a covering of  $R$  with nonoverlapping smaller regions called “tiles”. A jigsaw puzzle is an example of a tiling problem, though not very mathematical. We will survey some mathematical aspects of the theory of plane tilings, including the questions (1) Is there a tiling? (2) How many tilings are there? (3) About how many tilings are there? (4) Is a tiling easy to find? (5) Is it easy to prove that a tiling doesn't exist? (6) Is it easy to convince someone that a tiling doesn't exist? (7) What does a “typical” tiling look like? (8) What relations hold among different tilings? (9) What if we need infinitely many tiles? Most of the talk should be accessible to a general audience.

Richard Stanley received his Ph.D. in mathematics from Harvard University under the direction of Gian-Carlo Rota, and held postdoctoral positions at MIT and U.C. Berkeley. He subsequently joined the MIT faculty in applied mathematics in 1973, and became professor in 1979. Professor Stanley's distinctions include the SIAM George Pólya Prize in applied combinatorics (1975), a Guggenheim fellowship (1983), the Leroy P. Steele Prize for Mathematical Exposition (2001), the Rolf Schock Prize in Mathematics (2003), and the Aisenstadt Chair, University of Montreal (2007). He is a Fellow of the American Academy of Arts & Sciences (1988) and Member of the National Academy of Sciences (1995)