

1135-VO-2661      **Iwan Praton\*** (ipraton@fandm.edu), Department of Mathematics, Franklin & Marshall College, Lancaster, PA 17604. *Maximal tilings with the minimal tile condition*. Preliminary report.

Fix a positive integer  $n \neq 2, 3, 5$ . There are many ways to tile a unit square with  $n$  smaller squares. For each such tiling  $T$ , define  $S(T)$  to be  $s_1 + \cdots + s_n$ , where  $s_i$  is the side length of the  $i$ th small square. Erdos and Soifer introduced the problem of finding  $F(n)$ , the maximum value of  $S(T)$ . Although they gave precise conjectured values for  $F(n)$ , the problem is still unsolved. Later on, Alm introduced a minimal tile condition on the tilings  $T$  and asked whether it is possible to determine the maximum value of  $S(T)$  over all tilings  $T$  that satisfy the minimal tile condition; the hope is that the problem becomes more computationally tractable. This talk gives an overview of the problem and focuses on the case  $n = k^2 + 3$ : in that case, under certain technical conditions, the maximum value is  $k + 1/k$ , confirming the Erdos-Soifer value. (Received September 26, 2017)