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**Silvia P Heubach\*** (sheubac@calstatela.edu), Dept. of Mathematics and Computer Science, California State University Los Angeles, 5151 State University Drive, Los Angeles, CA 90032-8204, and **Phyllis Z Chinn**. *Exact and Asymptotic Results for Tilings of Rectangles with Squares*.

The authors have derived exact and asymptotic results for the number of tilings,  $T_{m,n}$ , of an  $m \times n$  area with  $1 \times 1$  and  $2 \times 2$  tiles. In particular, the focus is on  $T_{m,n}^k$ , the number of such tilings which contain exactly  $k$  of the  $2 \times 2$  tiles. For  $m = 2$  and  $m = 3$ , exact results have been established for  $T_{m,n}^k$ . For  $m = 4$  and  $m = 5$ , recursions for  $T_{m,n}^k$  were derived and used to compute the generating functions  $G_m(x, t) := \sum_{n,k \geq 0} T_{m,n}^k x^n t^k$  and  $G_m(x) := \sum_{n \geq 0} T_{m,n} x^n$  for  $T_{m,n}^k$  and  $T_{m,n}$ , respectively. Asymptotic behavior for  $T_{m,n}^k$  and  $T_{m,n}$  is then obtained from the respective generating functions. (Received October 03, 2000)