1093-05-27 Jeffrey B. Remmel* (jremmel@ucsd.edu), Department of Mathematics, University of Califonia, San Diego, La Jolla, CA 92093-0112. *Quadrant Marked Mesh Patterns*. Preliminary report.

If $\sigma = \sigma_1 \dots \sigma_n$ is a permutation in the symmetric group S_n , we say that σ_i matches the quadrant marked mesh pattern MMP(a, b, c, d) if there are at least a elements of σ to the right of σ_i which are larger than σ_i , at least b points to the left of σ_i which are larger than σ_i , at least c elements of σ to the left of σ_i which are smaller than σ_i , at least d points to the right of σ_i which are smaller than σ_i . Let $mmp^{(a,b,c,d)}(\sigma)$ denote the number of σ_i in σ that match MMP(a, b, c, d). The study of the distribution of quadrant marked mesh patterns in permutations was introduced by S. Kitaev and Remmel who also studied the distribution of quadrant marked mesh patterns in alternating permutations. Kitaev, Remmel, and Tiefenbruck studied the distribution of quadrant marked mesh patterns in 132-avoiding permutations. In this talk, we will survey such results as well as talk about new results on joint distributions of such statistics. (Received June 14, 2013)