1090-05-114 **Anton Betten*** (betten@math.colostate.edu), Colorado State University, Department of Mathematics, Fort Collins, CO 80523-1874. *Spreads and Packings in $PG(3,q)$.*

In projective three-space, a spread is a collection of lines such that each point is on one and only one of the lines of the spread. A packing is a set of spreads such that each line is in one and only one line of the packing. We consider the projective space $\mathrm{PG}(3,q)$ defined over the finite field with q elements. In this case, a spread has q^2+1 lines and a packing consists of q^2+q+1 spreads. In general, there are many ways that spreads and packings can be formed, and we are interested in determining these ways up to the action of the automorphism group of the space. This is the classification problem for spreads and packings. To solve this problem, we rely on the method of *breaking the symmetry.* This is using the theory of permutation groups to classify orbits step-by-step. We present new results regarding spreads in $\mathrm{PG}(3,q)$ for $q=8$ and $q=9$, under the additional hypothesis that they contain a regulus. We also classify the packings of $\mathrm{PG}(3,3)$. (Received February 23, 2013)