1024-20-58 **Luise-Charlotte Kappe** (menger@math.binghamton.edu), Department of Mathematical Sciences, SUNY at Binghamton, Binghamton, NY 13902-6000, and **Joanne L Redden*** (reddenj@cortland.edu), Department of Mathematics, SUNY College at Cortland, Box 2000, Cortland, NY 13045-0900. *On simple groups as the union of proper subgroups.* Preliminary report.

Bernhard Neumann showed that a group is the union of fintitely many proper subgroups if and only if it has a finite noncyclic homomorphic image. J.H.E. Cohn defined s(G) to be the smallest integer n such that the group G is the set-theoretic union of n proper subgroups. The question arises what integers n can occur as s(G) for a group G. By a result of M.J. Tomkinson, for solvable groups s(G) is congruent to 1 modulo a prime power, and there is no group with s(G) = 7. Cohn showed that s(G)=10 and 16 for G the alternating and symmetric group on 5 letters, respectively. Tomkinson conjectured that there are no groups with s(G) = 11, 13 or 15, respectively.

With the help of GAP we determine s(G) for nonsolvable and simple groups in particular. We found that s(PSL(2,7)) = 15. But current evidence supports Tomkinson's conjecture for n = 11 and n = 13. (Received December 18, 2006)