1035-A0-19 **Carl Pomerance***, Dartmouth College, Department of Mathematics, Hanover, NH 03755. *The coverig congruences of Paul Erdős.*

Note that every integer is either even or odd. That is, the residue classes 0 mod 2 and 1 mod 2 cover all of the integers. Can this be done where the moduli are all different and larger than 1? Sure, but it's harder: try 0 mod 2, 0 mod 3, 1 mod 4, 1 mod 6, and 11 mod 12. Over 50 years ago, Erdős asked if one can cover with a finite collection of residue classes with distinct moduli, where the least modulus is arbitrarily large. He later wrote that this was perhaps his favorite problem. It's not so difficult to find examples with least modulus 3 or 4 or so, but no one knows any examples with least modulus greater than 36. Can you find one? This talk will give an introduction to this thorny, yet accessible research problem, mentioning some new results and some related problems. (Received May 10, 2007)