1024-11-245   **Michael Filaseta*** (`filaseta@math.sc.edu`), Mathematics Department, University of South Carolina, Columbia, SC 29208, and **Carrie Finch** (`cfinch@math.sc.edu`) and **Mark Kozek** (`kozek@math.sc.edu`). *Some recent applications of covering systems of the integers.*

A Sierpiński number is a positive odd integer k with the property that $k \cdot 2^n + 1$ is composite for all positive integers n. A Riesel number is a positive odd integer k with the property that $k \cdot 2^n - 1$ is composite for all positive integers n. The smallest known Sierpiński number is 78577, and the smallest known Riesel number is 509203. The talk will focus on some recent work concerning powers that are Sierpiński numbers and powers that are Riesel numbers. Other results shall be discussed as well. For example, we will discuss numbers that are simultaneously Sierpiński and Riesel numbers. (Received January 09, 2007)