Caroline Turnage-Butterbaugh* (ctb@math.duke.edu). On r-gaps between zeros of the Riemann zeta-function. Preliminary report.

Denote by $0 < \gamma_1 \leq \gamma_2 \leq \ldots$ the imaginary part of the zeros of the Riemann zeta-function on the critical line. Selberg showed that for all positive integers $r$ there exists an absolute constant $c$ such that $\limsup_{n \to \infty} (\gamma_{n+r} - \gamma_n) \frac{\log \gamma_n}{2\pi r} > 1 + c/\sqrt{r}$ and $\liminf_{n \to \infty} (\gamma_{n+r} - \gamma_n) \frac{\log \gamma_n}{2\pi r} < 1 - c/\sqrt{r}$. We continue the investigation into qualitative descriptions of $r$-gaps between zeros of the Riemann zeta-function in this preliminary report, which is joint work with Brian Conrey. (Received September 19, 2016)