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Habiba Kadiri* (habiba.kadiri@uleth.ca), Mathematics and Computer Science Department, 4401 University Drive, Lethbridge, Alberta T1K 3M4, Canada, and **Allysa Lumley** and **Nathan Ng**. *New explicit zero density result for the Riemann Zeta Function and consequences for the primes.*

Zero density result for $\zeta(s)$ consist in estimating the number $N(\sigma, T)$ of non-trivial zeros of the Riemann zeta function with real part greater than σ and imaginary part between 0 and T . In 1940, Ingham showed the following asymptotic result

$$N(\sigma, T) \ll T^{\frac{3(1-\sigma)}{2-\sigma}} (\log T)^5.$$

Many other asymptotic bounds of different form have been proven since then, but very few provide an explicit bound. Ramaré recently proved

$$N(\sigma, T) \leq 4.9(3T)^{\frac{8}{3}(1-\sigma)} (\log T)^{5-2\sigma} + 51.5(\log T)^2,$$

for $\sigma \geq 0.52$ and $T \geq 3.061 \cdot 10^{10}$. We will present here an improvement of this result, together with applications to explicit estimates for the prime counting function $\psi(x)$. (Received September 19, 2016)