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On some results involving the Riemann zeta function and the Mobius function

The summatory Mobius function M(x) is closely related to the notorious Riemann zeta function and is an object of much study. It is well known that while Merten's conjecture is false, proving something just slightly weaker would imply Riemann's hypothesis. In this talk, we present some recent unconditional explicit results on the summatory Mobius function M(x) (joint with Ethan Lee), while along the way proving some improvements in lower bounds for the zeta function. Finally we will discuss some ongoing joint work with Nathan Ng on the logarithmic density of the set of reals for which Merten's conjecture fails.