Simple zeros of degree 2 L-functions

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The Grand Riemann Hypothesis and Grand Simplicity Hypothesis predict that the zeros of automorphic L-functions all lie on the line Re(s)=1/2 and are simple, apart from at most one multiple zero for L-functions arising from arithmetic geometry (such as occurs under the BSD conjecture). No examples of either conjecture have been established, and most partial progress to date has been for degree 1, i.e. the Dirichlet L-functions. I will report on recent work proving that degree 2 L-functions (those associated to classical modular forms) have infinitely many simple zeros. If time permits, I will also discuss joint work with Milinovich and Ng on quantitative versions of this result.