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Emanuel Carneiro, Andrés Chirre and Micah B. Milinovich* (mbmilino@olemiss.edu),
Department of Mathematics, University of Mississippi, University, MS 38677. *Non-vanishing of
 L -functions at low-lying heights on the critical line.* Preliminary report.

Given a family of L -functions, there has been a great deal of interest in estimating the proportion of the family that does not vanish at special points on the critical line. Conjecturally, there is a symmetry type associated to each family which governs the distribution of low-lying zeros (zeros near the real axis). Important partial progress towards these conjectures come from so-called one-level density theorems. Assuming the generalized Riemann hypothesis, Iwaniec, Luo, and Sarnak used information from one-level density theorems combined with the solutions to certain Fourier optimization problems to study non-vanishing of L -functions in families at the central point. If one instead attempts to estimate the proportion of non-vanishing at a low-lying height on the critical line (measured by analytic conductor), the Fourier optimization problems change in a substantial way and new tools are required to solve them. We describe these extremal problems and the corresponding non-vanishing results for families of L -functions. (Received February 11, 2021)