1146-11-138 **Jonathan Bober** and **Zhenchao Ge*** (zge@olemiss.edu), Department of Mathematics, University of Mississippi, University, MS 38677, and **Micah Milinovich**. *Irregularities in the value distribution of Dirichlet L-functions.*

The integral of Hardy Z-function from 0 to T measures the occurrence of its sign changes. Hardy proved that this integral was $o(T)$ from which he deduced that the Riemann zeta-function has infinitely many zeros on the critical line. More recently, Ivic conjectured this integral is $O(T^{1/4})$ and $\Omega_{\pm}(T^{1/4})$ as $T \to \infty$. These estimates were proved, independently, by Korolev and Jutila. In this talk, we will show that the analogous conjecture is false for the Z-functions of certain "special" Dirichlet L-functions. In particular, we show that the integral of the Z-function of a Dirichlet L-functions from 0 to T is asymptotic to $c_\chi T^{3/4}$ and we classify precisely when the constant c_χ is nonzero. This constant equals zero for most primitive characters, however there is a thin (but infinite) set of exceptions. Somewhat surprisingly, numerical evidence seems to suggest that the unexpectedly large mean value is caused by a currently unexplained bias in the gaps between the zeros of these "special" Dirichlet L-functions. This is joint work with Jonathan Bober and Micah Milinovich. (Received January 16, 2019)