The joint universality and the generalized self-similarity for Dirichlet L-functions.

Takashi Nakamura (Nagoya Univ.)

In this talk, we show the joint universality for a set of Dirichlet L-functions $\{L(s+i\delta d_l\tau, \chi)\}_{l=1}^m$, where $1 = d_1, d_2, \dots, d_m$ are algebraic real numbers and linearly independent over $\mathbb{Q}$ and $\delta \in \mathbb{R} \setminus \{0\}$. From this property, we obtain that $\{L(s+i\delta d_l\tau, \chi)\}_{l=j,k}$, where d_j and d_k are two of the above, has a kind of generalized self-similarity. Roughly speaking, this means that $L(s+i\delta d_j\tau, \chi)$ is uniformly approximated by $L(s+i\delta d_k\tau, \chi)$. Moreover, as a kind of generalization of above theorems, we show the joint universality and the generalized self-similarity for a set of Dirichlet L-functions $\{L(s+i\delta_l\tau, \chi)\}_{l=1}^2$, where $\delta_1 = 1$, for almost all δ_2.