U.

let $U(s)$ harmonic reg. zero on boundary Γ

ρ run over zeros inside.

then

$$\sum U(\rho) = -\frac{1}{2\pi}\int_{\Gamma} \log|f(s)| \frac{\partial U}{\partial n}|ds|$$

take

$$U(s) = \frac{4T}{\pi}\cos\frac{\pi}{4T}t \cdot \sinh\frac{\pi}{4T}(\sigma-\alpha)$$

$\rho = \beta + i\gamma$

$$\sum_{|\gamma|<T} \beta-\alpha < c\int_{-2T}^{2T} \log|f(\alpha+it)|\,dt$$

$$+ c\int_{\alpha}^{\infty} \log|f(\sigma \pm 2iT)| \sinh\frac{\pi}{4T}(\sigma-\alpha)\,d\sigma$$

1. ~~Form of Large Sieve with pseudo characters:~~

2. Form of combination with Integral inequality.

3. Auxiliary functions, & estimations

4. Littlewoods Lemma. & technique for estimation of integrals $\int \log|1+u+w|$

5. Choice of parameters & final result.

6. Endremarks, about the method.

$$a_n = \sum_{d \mid n} \lambda_d \; ; \qquad \lambda_d = \mu(d) \text{ for } d \le z$$

$$\lambda_d = \mu(d) \frac{\log \frac{z\xi}{d}}{\log \xi} \quad z < d < z\xi$$

q square free.

$\psi_q(n)$ multiplicative $\psi_q(n) = \mu((q,n))\varphi((q,n))$

for $\sigma > 1$. have χ prim. char mod q_1, $(q_1, q_2) = 1$, q_2 square free

$$\sum_n \frac{\chi(n)\psi_{q_2}(n)\, a_n}{n^s}$$

$$= L(s,\chi)\, M(s, \chi\psi)$$

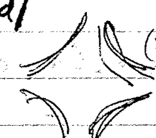
with.

$$M(s, \chi\psi) = \sum_d \frac{\lambda_d \chi(d)\psi_{q_2}(d)}{d^s} \prod_{p \mid \frac{q_2}{(d,q_2)}} (1 - \chi(p) p^{1-s})$$

$$\frac{(\ldots \Sigma u)^2}{(\Sigma u)^2} \qquad |u^2+v^2| \geq \delta$$

$$\frac{1}{2}\frac{s^2+\ldots}{(s+1)^2 (s+2)^2} = \frac{1}{s+1} + \frac{1}{2(s+1)^2} \quad \delta_1 + \delta.$$

$$\sum_{d|m} \lambda_d \qquad \sum_{d|} \qquad \frac{s+\frac{3}{2}}{(s+1)^2} < \frac{1}{s+\frac{1}{2}}$$



$$\frac{TQ^2 \sum z^{1-2\sigma}}{z = TQ^2} \qquad x = \left(\sqrt{TQ} \quad zy\right)^{1+\epsilon}$$

$\boxed{\text{that is the one}}$

$$\frac{1}{p} \int \frac{\left(\frac{z}{p}\right)^s}{s^2} \frac{\prod_{d|p}(1-p^{-1-s})}{\varphi(1+s)}\, ds$$

$$M \sum \frac{u^2 \lambda_d}{d^2 d'^2} \qquad M \sum e^2 \left\{ \sum_{d|p} \frac{\lambda_d}{d^2} \right\}^2 + \qquad p^{1-1}$$

$$\frac{1}{p} \prod_{p|p} (1-p^{-1}) + O\left(\frac{1}{p\left(1+\delta \frac{z}{p}\right)^k} \right) \qquad |a_n|^2 \, x^{1-2\sigma}$$

$$u^2+v^2 \geq \frac{1}{\delta^2}\left(\frac{z}{p}\right)^{-\alpha} \prod_{p|p}(1-\ldots) \qquad \sum |a_n|^2 x^{1-2\sigma}$$

$$\delta t \cdot e^{\frac{1}{a+\delta t}} \quad \left|\frac{A}{B} - \frac{A'}{B'}\right| \qquad \sum |a_n|^2 \cdot \boxed{X^{1-2\sigma}}$$

$$e^{\frac{1}{a+\delta t}} + \geq \frac{1}{|BB'|^{\frac{1}{2}}}$$

$$t^{-\frac{1}{2}} \quad e^{-\frac{1}{2}\delta t - \frac{a}{\delta t}}$$

$$\frac{\delta t}{t^2} e^{-\frac{a}{\delta t}} dt. \qquad e^{-c\sqrt{a}}$$

$$e^{-c\sqrt{\delta \frac{z}{p}}} \qquad \frac{S_{2y,p} - S_{z,p}}{\delta y \cdot \frac{\varphi(p)}{p^2}}$$

$$- \sum$$

$$\sum_{\substack{p|d \\ d \leq z}} \frac{\mu(d)}{d} \delta \frac{z}{d} = \frac{1}{p} \prod_{p|p} (1-p^{-1}) + O\left(\frac{1}{p\left(1+\delta\frac{z}{p}\right)^k} \prod_{p|p}(1+p^{\frac{3}{4}}) \right)$$

$$\text{for } p < z \quad O\left(\frac{\prod_{p|p}(1+p^{-\frac{3}{4}})}{p\left(1+\delta \frac{z}{p}\right)^2} \right)$$