Zeitschrift: L'Enseignement Mathématique

Herausgeber: Commission Internationale de l'Enseignement Mathématique

Band: 38 (1992)

Heft: 1-2: L'ENSEIGNEMENT MATHÉMATIQUE

Artikel: AN ANALOGUE OF HUBER'S FORMULA FOR RIEMANN'S ZETA FUNCTION

Autor: Williams, Floyd L.

Bibliographie

DOI: https://doi.org/10.5169/seals-59488

Thus by page 332 of [8], $I = -\log\frac{1}{2} + \psi\left(\frac{3}{8}\right)$, and by (7.8) we get

THEOREM 7.10. *In the notation of (4.1), (4.2)*

$$\pi \lim_{T\to\infty} \sum_{\substack{p \\ |\mathrm{Im}\, p| < T}} \frac{np}{\cos\frac{\pi p}{2} + \sin\frac{\pi p}{2}}$$

$$= -2\sqrt{2}\sum_{n=1}^{\infty} \frac{\Lambda(n)}{\sqrt{n}}\frac{n}{n^2+1} - \frac{\log\pi}{\sqrt{2}} + 2\pi + \frac{1}{\sqrt{2}}[\log 2 + \psi(3/8)] .$$

REFERENCES

[1] BARNER, K. On A. Weil's explicit formula. *J. Reine Angew. Math. 323* (1981), 139-152.

[2] BENEDETTO, J. Fourier analysis of Riemann distributions and explicit formulas. *Math. Ann. 252* (1980), 141-164.

[3] DELSARTE, J. Formules de Poisson avec reste. *J. Anal. Math. 17* (1966), 419-431.

[4] FRIEDLANDER, F. *Introduction to the theory of distributions.* Cambridge Univ. Press (1982).

[5] GANGOLLI, R. Zeta functions of Selberg's type for compact space forms of symmetric spaces of rank one. *Ill. J. Math. 21* (1977), 1-42.

[6] —— On the length spectrum of certain compact manifolds of negative curvature. *J. Diff. Geometry 12* (1977), 403-424.

[7] GOLDFELD, D. Explicit formulae as trace formulae, from Number Theory. *Trace Formulas and Discrete Groups,* 1987 Oslo Symposium in honor of A. Selberg, 281-188. Academic Press.

[8] GRADSHTEYN, I. and I. RYZHIK. *Table of integrals, series, and products,* corrected and enlarged edition prepared by A. Jeffrey (1965), 6th printing, Academic Press.

[9] GUINAND, A. A summation formula in the theory of prime numbers. *Proc. London Math. Soc. 50* (1945) 107-119.

[10] HEJHAL, D. The Selberg trace formula and the Riemann zeta function. *Duke Math. J. 43* (1976), 441-482.

[11] HUBER, H. Zur analytischen Theorie Hyperbolischer Raumformen and Bewegungsgruppen I. *Math. Ann. 138* (1959), 1-26.

[12] INGHAM, A. *The distribution of prime numbers.* Cambridge Tracts in Math. and Math. Physics, No. 30, Stechert-Hafner Service Agency (1964); originally published in 1932 by Cambridge Univ. Press.

[13] LANG, S. *Algebraic number theory.* Grad. Texts, in Math. 110, Springer-Verlag (1986); originally published in 1970 by Addison-Wesley.

[14] MCKEAN, H. Selberg's trace formula as applied to a compact Riemann surface. *Comm. on Pure and Applied Math. 25* (1972), 225-246.

[15] SELBERG, A. Harmonic analysis and discontinuous groups in weakly symmetric Riemannian spaces with applications to Dirichlet series. *J. Indian Math. Soc. 20* (1956), 47-87.

[16] WEIL, A. Sur les «formules explicites» de la théorie des nombres premiers. *Comm. Lund* (1952), 252-265; volume dedicated to Marcel Riesz.

[17] —— Sur les formules explicites de la théorie des nombres. *Izv. Mat. Nauk 36* (1972), 3-18.

[18] WILLIAMS, F. *Lectures on the spectrum of* $L^2(\Gamma \backslash G)$. Pitman Research Notes in Math. Series 242, Longman House Pub. (1991).

[19] JOYNER, D. Summation operators and "explicit formulas". *Portugaliae Mathematica 44 (2)* (1987), 119-130. (Added in proof.)

(Reçu le 3 janvier 1992)

Floyd L. Williams

Department of Mathematics
University of Massachusetts
Amherst, Ma 01003
USA

vide-leer-empty