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On some estimates involving the binary additive divisor problem. (English) Zbl 0847.11046
Q. J. Math., Oxf. II. Ser. 46, No. 184, 471-483 (1995).

Let $E(x; f)$ be the error term in the asymptotic formula for $\sum_{n \leq x} d(n)d(n+f)$. Then it is shown that for every $\varepsilon > 0$ one has

$$\sum_{f \leq F} E^2(X; f) \ll_{\varepsilon} F^{1/3} X^{4/3+\varepsilon} \text{ and } \sum_{f \leq F} \left(\int_X^{2X} E(x; f) dx \right)^2 \ll_{\varepsilon} F X^{3+\varepsilon},$$

uniformly for $F \leq X^{1/2-\varepsilon}$. The proofs use spectral large sieve inequalities, together with an explicit formula for $E(x; f)$ due to the second author [Ann. Sci. Éc. Norm. Supér., IV. Sér. 27, 529-572 (1994; Zbl 0819.11038)].

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MSC:

11N37 Asymptotic results on arithmetic functions
11F72 Spectral theory; trace formulas (e.g., that of Selberg)

Cited in **1** Review
Cited in **5** Documents

Keywords:

binary additive divisor problem; spectral theory; error term; asymptotic formula; spectral large sieve inequalities

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