

BBP formula for Catalan's constant

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Dear Prof. Bailey,

I found that Broadhurst's formula for Catalan's constant (i.e. Equation (127) in ref. [9] of the Compendium) can be simplified to give the standard BBP form:

$$G = \frac{3}{2^{12}} P(2, 2^{12}, 24, (2^{11}, -2^{11}, -2^{11}, 0, -2^9, -2^{10}, -2^8, 0, -2^8, -2^7, 2^6, 0, -2^5, 2^5, 2^5, 0, 2^3, 2^4, 2^2, 0, 2^2, 2, -1, 0))$$

The simplification consists of expressing the imaginary part of each of $\text{Li}_2((1+i)/2)$, $\text{Li}_2((1+i)/4)$ and $\text{Li}_2(-i/2)$ as a BBP formula of base 2^{12} , length 24 and forming the required linear combination.

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