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Periods of fibre product of elliptic surfaces and the Gamma conjecture

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Given two rational elliptic surfaces over the projective line, one may construct a Calabi-Yau threefold by considering their fibre product, following a construction of Schoen. For specific pairs of elliptic surfaces, deforming the parameter of one of the elliptic surfaces in a specific manner one obtains a family of such threefolds called the Hadamard product. These Hadamard products carry a motive of type (1,1,1,1) and the associated Picard-Fuchs equation is a Calabi-Yau operator.
I will describe a method for computing numerical approximations of the periods of such threefolds with very high precision, relying on an explicit description of their homology. This computation allows to probe into the Gamma class formula for these Calabi-Yau operators: we find a formula that seems to fit all example of the Calabi-Yau database.

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