



# Mock period functions, sesquiharmonic Maass forms, and non-critical values of L-functions

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We introduce a new technique of completion for 1-cohomology which parallels the corresponding technique in the theory of mock modular forms. This technique is applied in the context of non-critical values of L-functions of GL(2, Q) cusp forms. We prove that a generating series of non-critical values can be interpreted as a mock period function we define in analogy with period polynomials. Further, we prove that non-critical values can be encoded into a sesquiharmonic Maass form. Finally, we formulate and prove an Eichler-Shimura-type isomorphism for the space of mock period functions.

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