Extra-zeros of p-adic L-functions and p-adic Hodge theory

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One says that a p-adic L-function has an extra zero if the p-adic interpolation property forces it to vanish at some integer point. In the case of elliptic modular forms, this phenomenon was first studied by Mazur, Tate and Teitelbaum in 1986. They conjectured that in the presence of a trivial zero the special value of the p-adic L-function at the central point is related to the special value of the corresponding complex L-function via a new invariant defined in terms of the p-adic Hodge theory.

In this talk we discuss a quite general conjecture describing special values of p-adic L-functions at extra-zeros focusing on the non-critical point case and present some new results in this direction.