p-ADIC MULTIPLE ZETA VALUES AND DOUBLE SHUFFLE RELATIONS

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This is a joint work [FJ] with Amir Jafari, which extends my previous joint work [BF] with Amnon Besser. In my talk I will talk about p-adic multiple zeta value. It is a p-adic analogue of usual multiple zeta value, introduced by myself in [F1] and developped in [F2]. I will explain a regularization for p-adic multiple zeta values and show that the generalized double shuffle relations hold. This solves a question raised by Deligne [D], given as a project in Arizona Winter School 2002. Our approach is to use the theory of Coleman functions on the moduli space of genus zero curves with marked points and its compactification. The main ingredients are the analytic continuation of Coleman functions to the normal bundle of divisors at infinity developped in [BF] and definition of a special tangential base point on the moduli space.

References

[BF] Besser, A., Furusho, H.; The double shuffle relations for p-adic multiple zeta values, available at `math.NT/0310177`, preprint in 2003.

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[F1] Furusho, H.; p-adic multiple zeta values I – p-adic multiple polylogarithms and the p-adic KZ equation, Inventiones Mathematicae, Volume 155, Number 2, 253-286(2004).

[F2] ———; p-adic multiple zeta values II – tannakian interpretations, available at `math.NT/0506117`, preprint in 2004.

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