We define complexes analogous to Goncharov's complexes for the K-theory of discrete valuation rings of characteristic zero. Under suitable assumptions in K-theory, there is a map from the cohomology of those complexes to the K-theory of the ring. In case the ring is the localization of the ring of integers in a number field, there are no assumptions necessary. We compute the composition of our map to the K-theory with the syntomic regulator. The result can be described in terms of a p-adic polylogarithm. Finally, we apply our theory in order to compute the regulator to syntomic cohomology on Beilinson's cyclotomic elements. The result is again given by the p-adic polylogarithm. This last result is related to one by Somekawa and generalizes work by Gros.