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Golden numeration systems

Abstract: Let phi be the golden mean. There are two golden numeration systems. In the base phi numeration system, a natural number is written uniquely as a sum of powers of the golden mean with coefficients 0 and 1, where it is required that the product of two consecutive digits is always 0. The other system is the Zeckendorf numeration system. Here a natural number is written uniquely as a sum of Fibonacci numbers with coefficients 0 and 1, where it is required that the product of two consecutive digits is always 0. There are hundreds of papers on these systems. In this talk the focus will be on giving a precise description of the digit blocks that may occur in the expansions of the base phi numeration system. This yields in particular a new relationship between the two golden numeration systems.