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*Base Phi Representations and Golden Mean Beta-Expansions* ,  
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**Abstract**

In the base phi representation, any 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. In this paper, we give precise expressions for those natural numbers for which the  $k$ th digit is 1, proving two conjectures for  $k = 0, 1$ . The expressions are all in terms of generalized Beatty sequences.