

別紙 4

報告番	※	第
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主 論 文 の 要 旨

論文題目 Palindromes and v -Palindromes (回文数と v -回文数)

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論 文 内 容 の 要 旨

We introduce the concept of v -palindromes and prove that the v -palindromicity of the terms of the sequence of repeated concatenations of the digits of an arbitrary natural number is periodic. Then, we examine this periodic phenomenon more closely, introducing concepts such as the indicator function of a number and the type of a v -palindrome. Our subsequent main purposes are to

- (i) provide a general procedure to express the indicator function of a number as a certain linear combination,
- (ii) prove an invariance property about the type of a v -palindrome,
- (iii) prove the existence of v -palindromes in infinitely many bases.

However we also

- (iv) provide a survey of past results on the usual palindromes and other palindromic objects,
- (v) provide a treatment of periodic functions because of its relevance to (i) above,
- (vi) consider repeated concatenations in residue classes.

In the conclusion, we collect some conjectures and problems and describe how the content of this dissertation might be generalizable.