

DNA Computing Inspired Combinatorics on Words

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Periodicity, primitivity, borderiness and palindromicity are some of the fundamental notions in combinatorics on words. Motivated by the WatsonCrick (WK) complementarity of DNA strands wherein a word (strand) over the DNA alphabet $\{A,G,C,T\}$ and its WK complement are informationally equivalent, these notions have been extended to consider their pseudo counterparts obtained by replacing the “identity” function with “pseudoidentity” functions (antimorphic involution in case of WK complementarity). For a given alphabet Σ , an antimorphic involution θ is an antimorphism, i.e., $\theta(uv) = \theta(v)\theta(u)$ for all $u, v \in \Sigma^*$ and an involution, i.e. $\theta(\theta(u)) = u$ for all $u \in \Sigma^*$. The aim of the talk is an overview of above mentioned notions for various pseudo-identity functions including involutions.