

## COMPLETE MONOTONICITY OF SOME FUNCTIONS INVOLVING $k$ -DIGAMMA FUNCTION WITH APPLICATION

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**Abstract.** We present several complete monotonicity properties involving  $k$ -digamma function with single parameter. These established results provide a  $k$ -generalization for the known results obtained by Burić and Elezović in [5]. Finally, we give an application to the generalized Nielsen's  $\beta$ -function and pose two open problems.

**Mathematics subject classification (2010):** Primary 33B15; Secondary 26A48, 26A51.

**Keywords and phrases:**  $k$ -digamma function, complete monotonicity, inequalities.

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