

7 Conclusion

In this paper, an original study in the mathematical field is introduced by the author. And some applications in the engineering domains are presented in order to emphasize the importance of these new functions. In this paper, many functions are defined as ang_x , ang_y , ang_α , $ang_{|\alpha|}$ and $ang_{\Sigma|\alpha_k}$. For each function, an example is given in order to facilitate the comprehension of these new functions. These new functions have enormous importance in electronics and in signal theory in which the Angular functions can create new functions as we have seen it in the previous sections and moreover, the angular functions are the bases of the elliptical and rectangular trigonometry which are introduced by the author and are also published [1],[2],[3],[4],[5]. The importance of the angular functions is not limited only in the electrical and electronic domains. They can be used as any other functions in any domain.

References:

- [1] Claude Bayeh, M. Bernard, N. Moubayed, Introduction to the elliptical trigonometry, *WSEAS Transactions on Mathematics*, Vol.8, 2009, 9: pp. 551-560.
- [2] N. Moubayed, Claude Bayeh, M. Bernard, A survey on modeling and simulation of a signal source with controlled waveforms for industrial electronic applications, *WSEAS Transactions on Circuits and Systems*, Vol.8, 2009, 11: pp. 843-852.
- [3] Claude Bayeh, Introduction to the Rectangular Trigonometry in Euclidian 2D-Space, *WSEAS Transactions on Mathematics*, Vol.10, 2011, 3: pp. 105-114.
- [4] Claude Bayeh, Application of the Elliptical Trigonometry in industrial electronic systems with analyzing, modeling and simulating two functions Elliptic Mar and Elliptic Jes-x, *WSEAS Transactions on Circuits and Systems*, Vol. 8, 2009, 11: pp. 843-852.
- [5] Claude Bayeh, A survey on the application of the Elliptical Trigonometry in industrial electronic systems using controlled waveforms with modeling and simulating of two functions Elliptic Mar and Elliptic Jes-x, in the book "*Latest Trends on Circuits, Systems and Signals*", publisher WSEAS Press, ISBN: 978-960-474-208-0, ISSN: 1792-4324, (July 2010), pp.96-108.
- [6] M. Christopher, *From Eudoxus to Einstein: A History of Mathematical Astronomy*, Cambridge University Press, (2004).
- [7] Eric W. Weisstein, *Trigonometric Addition Formulas*, Wolfram MathWorld, (2009).
- [8] Paul A. Foerster, *Algebra and Trigonometry: Functions and Applications*, Addison-Wesley publishing company, (1998).
- [9] Frank Ayres, *Trigonométrie cours et problèmes*, McGraw-Hill, (1991).
- [10] Robert C. Fisher and Allen D .Ziebur, *Integrated Algebra and Trigonometry with Analytic Geometry*, Pearson Education Canada, (2006).
- [11] E. Demiralp, Applications of High Dimensional Model Representations to Computer Vision, *WSEAS Transactions on Mathematics*, Vol.8, 2009, 4:pp.184-192.
- [12] A. I. Grebennikov, Fast algorithm for solution of Dirichlet problem for Laplace equation, *WSEAS Transactions on Computers Journal*, Vol.2, 2003, 4: pp. 1039 – 1043.
- [13] I. Mitran, F. D. Popescu, M. S. Nan, S. S. Soba, Possibilities for Increasing the Use of Machineries Using Computer Assisted Statistical Methods, *WSEAS Transactions on Mathematics*, Vol.8, 2009, 2:pp.85-95
- [14] Q. Liu, Some Preconditioning Techniques for Linear Systems, *WSEAS Transactions on Mathematics*, Vol.7, 2008, 9:pp.579-588
- [15] A. I. Grebennikov, The study of the approximation quality of GR-method for solution of the Dirichlet problem for Laplace equation. *WSEAS Transactions on Mathematics Journal*, Vol.2, 2003, 4: pp. 312-317.
- [16] R. Bracewell, Heaviside's Unit Step Function. rdThe Fourier Transform and its Applications, 3rd edition, New York: *McGraw-Hill*, (2000), pp. 61-65.
- [17] Milton Abramowitz and Irene A. Stegun, eds, *Handbook of mathematical functions with formulas, graphs and mathematical tables*, 9th printing, New York: Dover, 1972.
- [18] Vitit Kantabutra, On hardware for computing exponential and trigonometric functions, *IEEE Transactions on Computers*, Vol. 45, 1996,3: pp. 328–339.
- [19] H. P. Thielman, A generalization of trigonometry, *National mathematics magazine*, Vol. 11, 1937, 8: pp. 349-351.
- [20] N. J. Wildberger, Divine proportions: Rational Trigonometry to Universal Geometry, *Wild Egg, Sydney*, (2005).
- [21] Cyril W. Lander, *Power electronics*, third edition, McGraw-Hill Education, (1993).