

# THE DIFFERENTIAL TRANSFORM METHOD FOR SOLVING RANDOM DIFFERENTIAL MODELS

LAURA VILLAFUERTE ALTÚZAR

In this talk, a Differential Transform Method (DTM) based on the fourth calculus is developed to solve random differential models. An analytical mean fourth convergent series solution is found for linear and nonlinear equations by using the random DTM. Besides of obtaining the solutions of the equations, we provide approximations of the main statistical functions of the stochastic solution process such as the mean and variance.

Joint work with Benito Miguel Chen Charpentier.

## REFERENCES

- [1] T.T. Soong, Random Differential Equations in Science and Engineering, Academic Press, New York, 1973.
- [2] L. Arnold, Stochastic Differential Equations Theory and Applications, John Wiley, New York, 1974.
- [3] L. Villafuerte, C.A. Braumann, J.C. Cortés, L. Jódar, Random differential operational calculus: Theory and applications, *Comput. Math. Appl.* 59 (2010) 115–125.
- [4] J.C. Cortés, P. Sevilla, L. Jódar, Analytic-numerical approximating processes of diffusion equation with data uncertainty, *Comput. Math. Appl.* 59 (2005) 1255-1266.
- [5] J. Biazar, M. Eslami, Differential transform method for quadratic Riccati differential equation, *International Journal of Nolinear Science* 59 (2010) 115–125.