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Fractional? Where?

The term “fractional” emerged in recent years in connection with different signal processing theories and techniques, sometimes with no visible connection between them. However, most are based on Fractional Calculus. The works of Mandelbrot on Fractals, that led to a significant impact in several scientific areas and attracted, definitively, the attention to fractional “objects” . Presently, new topics are the object of active research such as, fractional Brownian motion, discrete-time fractional linear systems, fractional delay filtering, fractional splines and wavelets. Moreover its applications in modeling natural and man made systems has been increasing. Several examples will be used to illustrate this affirmation. A brief introduction to the Fractional Calculus will be presented.