

# Fractional splines in subdiffusion

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Subdiffusion is a type of anomalous diffusion that takes place when the second order moment of the displacement of a particle grows accordingly to a power law of time that is less than one ( $0 < \alpha < 1$ ). It is used to model several phenomena through fractional differential equations in fields such as hydrology, finance and biology. In terms of numerical methods for this type of equations, the challenges are more complex than for classical differential equations. In this talk, we will explore how to use fractional splines of order  $\beta$  ( $0 < \beta \leq 1$ ) to approach a subdiffusion problem by presenting a numerical method and its properties of convergence that are influenced by both  $\alpha$  and  $\beta$ .

## References

- [1] JESUS, C., SOUSA, E., *Numerical method with fractional splines for a subdiffusion problem*, Bit Numer Math, Vol. 60, 1075-1111 (2020).

**This submission is for an invited session**