

Isogeometric analysis in option pricing

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ABSTRACT

The aim of this talk is to show an application of isogeometric analysis in mathematical finance, in particular in option pricing. Although the rectangular domains considered in option pricing equations are rather simple from the geometrical point of view, price surfaces obtained as a solution to these equations are on the other hand quite complex. We show that these surfaces can be easily described by NURBS surfaces. For a class of stochastic volatility models, we develop a methodology for solving corresponding pricing partial integro-differential equations (PIDEs) numerically by isogeometric analysis tools and show that using the same computational resources we get more accurate results than in the finite elements methods with standard choices of basis functions.

REFERENCES

- [1] Pospíšil, J. and Švígler, V. (2017) *Isogeometric analysis in option pricing*. Manuscript under review (submitted 01/2017).