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Normal bivariate Birkhoff interpolation schemes and Pell equation

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Abstract: Finding the normal Birkhoff interpolation schemes where the interpolation space and the set of derivatives both have a given regular “shape” often amounts to number-theoretic equations. In this paper we discuss the relevance of the Pell equation to the normality of bivariate schemes for different types of “shapes”. In particular, when looking at triangular shapes, we will see that the conjecture in Lorentz R.A., *Multivariate Birkhoff Interpolation*, Lecture Notes in Mathematics, 1516, Springer, Berlin-Heidelberg, 1992, is not satisfied, and, at the same time, we will describe the complete solution.

Keywords: Birkhoff interpolation, Pell equation

AMS Subject Classification: 65D05, 11D09

REFERENCES

- [1] Barbeau E.J., *Pell's Equation*, Springer, New York, 2003.
- [2] Lorentz R.A., *Multivariate Birkhoff Interpolation*, Lecture Notes in Mathematics, 1516, Springer, Berlin-Heidelberg, 1992.
- [3] Gasca M., Maeztu J.I., *On Lagrange and Hermite interpolation in \mathbb{R}^n* , Numer. Math. **39** (1982), 1-14.
- [4] Stillwell J., *Elements of number theory*, Undergraduate Texts in Mathematics, Springer, New York, 2003.