The Fermat's equation on the sets of matrices and the homographic functions

Aleksander Grytczuk and Izabela Kurzydło

University of Zielona Góra, Poland

Abstract

We consider the matrix Fermat's equation

$$X^n + Y^n = Z^n. \tag{1}$$

We investigate the solvability of the equation (1) in 2×2 rational matrices X, Y, Z.

Moreover, we consider some connections between the Fermat's equation in the set of matrices and the set of special functions, namely the set of homographic functions.

Keywords

The matrix equations, Schur's Theorem, Fermat's type Diophantine equation on matrices.

References

Cao, Z. and Grytczuk, A. (1998). Fermat's type equations in the set of 2×2 integral matrices. *Tsukuba J. Math. 22(3)*, 637–643.

Cao, Z. and Grytczuk, A. (2000). Some remarks on Fermat's equation in the set of matrices. *Acta Acad. Paedagog. Agriensis Sect. Mat. 27*, 39–46.

Grytczuk, A. (1997). Fermat's equation in the set of matrices and special functions. *Stud. Univ. Babeş-Bolyai Math. 42(4)*, 49–55.