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MORE EXAMPLES ON GENERAL ORDER MULTIVARIATE PADÉ APPROXIMANTS FOR PSEUDO-MULTIVARIATE FUNCTIONS*

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Dedicated to Ed Saff on the occasion of his 60th birthday

Abstract. Although general order multivariate Padé approximants have been introduced some decades ago, very few explicit formulas have been given so far. We show in this paper that, for any given pseudo-multivariate function, we can compute its (M, N) general order multivariate Padé approximant for some given index sets M, N with the usage of Maple or other software. Examples include a multivariate form of the sine function

$$S(x,y) = (x+y) \sum_{i,j=0}^{\infty} (-1)^{i+j} \frac{x^{2i} y^{2j}}{(2(i+j)+1)!},$$

a multivariate form of the logarithm function

$$L(x,y) = \sum_{i+j \geq 1} \frac{x^i y^j}{i+j},$$

a multivariate form of the inverse tangent function

$$T(x,y) = (x+y) \sum_{i,j=0}^{\infty} (-1)^{i+j} \frac{x^{2i} y^{2j}}{2(i+j)+1},$$

and many others.

Key words. multivariate Padé approximant; pseudo-multivariate function

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