

EVALUATION OF ASSOCIATED LEGENDRE FUNCTIONS OFF THE CUT AND PARABOLIC CYLINDER FUNCTIONS*

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Abstract. We review a set of algorithms to evaluate associated Legendre functions off the cut; in particular, we consider prolate spheroidal, oblate spheroidal and toroidal harmonics. A similar scheme can be applied to other families of special functions like Bessel and parabolic cylinder functions; we will describe the corresponding algorithm for the evaluation of parabolic cylinder functions.

Key words. computation of special functions, Legendre functions, parabolic cylinder functions.

AMS subject classifications. 65D20, 33-04, 33C05, 33A70.

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