

16.64 SPECFN: Package for special functions

This special function package is separated into two portions to make it easier to handle. The packages are called SPECFN and SPECFN2. The first one is more general in nature, whereas the second is devoted to special special functions. Documentation for the first package can be found in the file `specfn.tex` in the “doc” directory, and examples in `specfn.tst` and `specfnmor.tst` in the examples directory.

The package SPECFN is designed to provide algebraic and numerical manipulations of several common special functions, namely:

- Bernoulli Numbers and Euler Numbers;
- Stirling Numbers;
- Binomial Coefficients;
- Pochhammer notation;
- The Gamma function;
- The Psi function and its derivatives;
- The Riemann Zeta function;
- The Bessel functions J and Y of the first and second kind;
- The modified Bessel functions I and K;
- The Hankel functions H1 and H2;
- The Kummer hypergeometric functions M and U;
- The Beta function, and Struve, Lommel and Whittaker functions;
- The Airy functions;
- The Exponential Integral, the Sine and Cosine Integrals;
- The Hyperbolic Sine and Cosine Integrals;
- The Fresnel Integrals and the Error function;
- The Dilog function;
- Hermite Polynomials;
- Jacobi Polynomials;
- Legendre Polynomials;