SFTools — Knowledge Based and Educational System on Special Functions

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An information system on special functions of mathematical physics SFTools operating as an interactive reference system as well as in the modification of an educational client-server system is exposed. The mathematical contents of SFTools is based on the book "Unified theory of special functions" by S.Yu. Slavyanov and W. Lay being in print in Oxford University Press. The whole project is led by S.Yu. Slavyanov.

The system is based on the "uniform" structural approach to the classification of special functions and exposes knowledge on the following classes of special functions:
1) Hypergeometric-type functions;
2) Heun functions;
3) Painleve transcendents;
4) Orthogonal polynomials.

For these functions basic differential equations with emphasize to singularities, integral relations, series expansions, Riemann's P-symbols and other important characteristics are given. Formulas output in TeX format is available. The numerical values of functions can be computed by Jaffe-Lay algorithm.

The interface of the reference system and the corresponding databases are coded in the Borland Delphi 3. The system is supposed to run under the Microsoft Windows 95/98 or NT environment. The system can also be used for educational purposes implemented as a client-server system with multiple-choice answering.