NAME

STRUVE − Return modified Struve function of order NU at argument X.

SYNOPSIS

RESULT=STRUVE(X,NU, RC)

X is the REAL*8 argument at which the function is to be computed
NU is the INTEGER*4 order of the function
RC is the INTEGER*4 return code; 0 => all went well

DESCRIPTION

This routine uses the power-series definition of the function as given by Formula 12.2.1 in [1]. It accumulates terms until the sum changes by less than a convergence tolerance or a limit is reached on the number of terms.

DIAGNOSTICS

On output these are the possible RC values:

0 all went well
1 the limit on terms was reached before the convergence tolerance was achieved

LINKAGE

gfortran source.f −L${HOME}/lib −lmisc

AUTHOR

Michael Kupferschmid

EXAMPLE

```
      REAL*8 X,L,STRUVE
      INTEGER*4 RC,NPTS/10/
      NU=-2
      DO 1 I=1,NPTS
           X=5.D0*DFLOAT(I)/DFLOAT(NPTS)
           L=STRUVE(X,NU, RC)
           IF(RC.NE.0) STOP
           WRITE(6,901) X,L
  901      FORMAT(F5.2,1X,F10.4)
    1 CONTINUE
      STOP
      END
```

This example produced the following output:

```
unix[1]
 0.50    -1.1618
 1.00    -0.3799
 1.50     0.0533
 2.00     0.5164
 2.50     1.1661
 3.00     2.1721
 3.50     3.7821
 4.00     6.3873
 4.50    10.6165
 5.00    17.4873
unix[2]
```

REFERENCES

[1] Milton Abramowitz and Irene A. Stegun, "Handbook of Mathematical Functions," Dover, December 1972, page 498.