Command FLEGENDRE

PURPOSE Specify a series of Legendre polynomials as fit functions.

PARAMETERS

ORDER Highest order of polynomial

/DEG The Legendre polynomials P(cos x) are calculated with x values representing angles in degrees.

/RAD The Legendre polynomials P(cos x) are calculated with x values representing angles in radian.
If neither "DEG" nor "RAD" are specified, the Legendre polynomials P(x) without any transformation of x values are calculated.

/EVEN The series consists of even polynomials only.

/ODD Only odd terms (including a constant term) are fitted.

/NORM The series is normalized, i.e. absolute and relative magnitude of the coefficients are separated.

REMARKS Definition of functions and fit parameter indices are evident from the following expressions:

Series including all terms:
$f(x) = a_1 + a_2 \cdot P_1(x) + a_3 \cdot P_2(x) + \ldots$

Even polynomials only:
$f(x) = a_1 + a_2 \cdot P_2(x) + a_3 \cdot P_4(x) + \ldots$

Odd polynomials only:
$f(x) = a_1 + a_2 \cdot P_1(x) + a_3 \cdot P_3(x) + \ldots$

Normalized series:
$f(x) = a1 \cdot (1 + a_2 \cdot P_1(x) + \ldots)$

In case DEG or RAD are specified, $P_l(x)$ is to be replaced by $P_l(\cos x)$.

Fit parameters are initially set to zero.

EXAMPLE FLEG 2
Define the fit function
$f(x) = a_1 + a_2 \cdot P_1(x) + a_3 \cdot P_2(x)$
$= a_1 + a_2 \cdot x + a_3 \cdot (3x^2 - 1)/2$

FLEG 4 / E N D
The specified fit function reads
$f(x) = a_1 \cdot (1 + a_2 \cdot P_2(\cos x) + a_3 \cdot P_4(\cos x)$
with x interpreted as angle in degrees.