## **Optimization of Numeric Data Processing by the INPGRAPH 3.4**

Working Paper for the Technical Meeting of the International Network of NRDC

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GCNEP, Bahadurgarh, Haryana, India, 1-4 May 2018

The input of true experimental numeric values is an important task of compilation for the EXFOR library. We often get data from old articles where the results are shown only as charts and table data are absent. The only way to get numeric data in this case is to digitize graphics.

We have worked out a special program InpGraph to digitize data of scanned images or images obtained from PDF-files. This program is available for using by all data centers.

We keep developing and improving our digitizer. Now we have issued the new release – number 3.4. Here we optimized the digitized numeric data processing. The DataTable mode was implemented in InpGraph. This mode is available from the results window as shown in the figure 1.

Press	to open DataTabl	e Mode	Presst	o edit COMN	10N Sect	ion			
🛸 Processing Result									×
Everything is	<u>OK!</u>						Sav	e OK	
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X Axis 1	0.0007 MEV						0.21276	0.28242E-01	3
Y Axis 1	0.0012 NO-DIM						0.20429	0.29405E-01	
Y Axis 2	0.0023 NO-DIM						0.19348	0.25863E-01	
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The DataTable mode is the mode of spreadsheet that provides users the following functions:

- Inputting and editing of numerical data;
- Handling of rows and columns;
- Calculations;

- Data sorting by three columns;

- Exporting and importing of numeric data in text format, Microsoft Word or Microsoft Excel formats.

Numeric data export of digitized results not only into the EXFOR-format provides the multipurpose usage of the InpGraph program and extends its range of application.

There are no limitations of rows number in the DataTable mode. It is important for spectra digitizing and their following processing.

🐜 Data Table DATA Selected Column: 3 Selected Row: 5 ANG EN DATA DATA-ERR ٠ Import Sort MEV ADEG MEV NO-DIM NO-DIM Chart 1 0. 30 1.5 0.148 0.060 Clear Check 30 1.53 0 162 0.051 2 0. Column 3 0. 30. 1.55 0.166 0.047 Add Insert 4 0. 30. 1.58 0.175 0.051 Delete Copy 1.6 5 0. 30. 0.198 0.051 Rename 6 0. 30. 1.62 0.211 0.065 Move Left Move Right 7 <sup>0</sup>. 30 1.65 0.216 0.051 Calculations 8 0. 30. 1.68 0.215 0.056 Set Value 1.7 9 0. 30 0.219 0.051 Set Precision 10 0. 30. 1.73 0.214 0.060 30. 1.75 0.214 0.056 Row 11 <sup>0</sup>. Add Insert 12 <sup>0.</sup> 30. 1.78 0.218 0.051 13 0. 30. 1.8 0.255 0.051 Сору Delete 30 1.83 0.292 0.060 14 0 Move Up Move Down 30. 1.85 0.310 0.056 15 <sup>0</sup>. Undo 30. 1.88 0.342 0.056 16 <sup>0</sup>. Undo Last Action 30. 1.9 0.351 0.060 17 0. Table 18 <sup>0.</sup> 30. 1.93 0.373 0.051 Clear Precision 19 <sup>0.</sup> 30 1.95 0.368 0.051 Export Check 30. 1.98 0.368 0.060 20 0. Clear Check Results 30. 2 0.344 0.060 21 30. 2.03 0.386 0.047 22 Cancel Save 30. 2.05 0.427 0.047 23 0

The DataTable mode window is shown in the figure 2.

Fig.2

The Data Table mode provides digitized numeric data validation that contains the following actions:

- Control of numerical data:

- ✓ data validation;
- ✓ precision assignment of numerical data;

- Verification of numerical data:

- ✓ avoidance of values coincidence by independent variables;
- $\checkmark$  control by graphic presentation of numerical.

While checking numerical values the program detects illegal characters and controls allowed variation range for every data column.

The definition of numeric data precision for every column is provided in the Data Table mode. The following parameters for precision settings may be set:

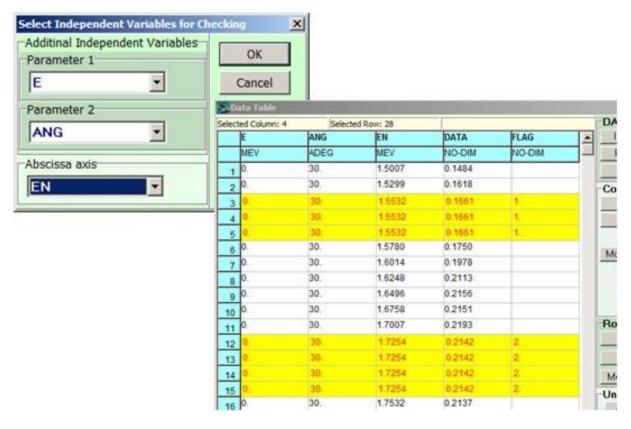
- number of digits after decimal point for the fixed point format;

- total number of digits of mantissa and the total number of digits of exponent for the scientific format;

– a flag to erase trailing zero.

The Chart mode for additional control of numerical data is available from the DataTable mode. Curves for all independent variables according to the digitized numerical data are presented on a plot.

A special check mode to avoid duplication of numerical data along independent variables is provided in the DataTable window. To use it one should press the button **Set on** the panel **Table** (Fig.2). After selection of table columns for equal independent variables checking the results are shown in the DataTable window (Fig.3).





The COMMON section processing (for the second SUBENTRY) was implemented in InpGraph. It is also available from the results window as shown in the figure 1.

The COMMON Section window is shown in the figure 4. Its functional capabilities are similar to the capabilities of columns processing in the DataTable mode.

÷,	COMMON Secti								
Г	EN-ERR-DIG	ERR-DIG							
	MEV	NO-DIM							
1	0.0006	0.0014	(						
-0	Column								
	Add	Insert Co	opy Delete	Save					
	Rename	recision Mov	∕e Left Mo∨e Right	Cancel					



So the numeric data processing according to the EXFOR rules is available now in the InpGraph 3.4. It is possible to generate DATA SECTION and COMMON SECTION completely by the digitizer.