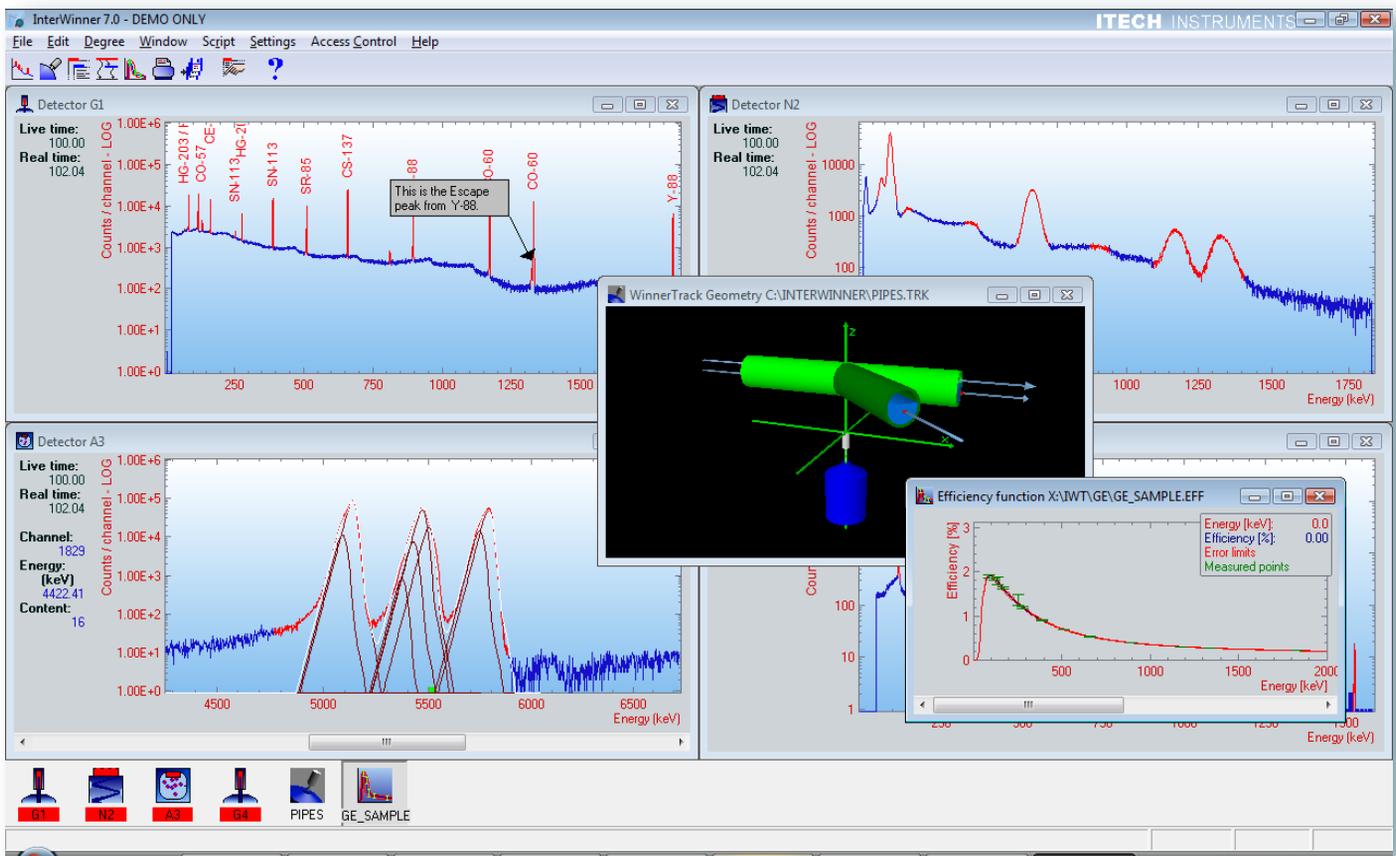


# InterWinner



**InterWinner 7.0** is a universal nuclear spectroscopy analytical program simultaneously controlling up to 32 inputs. **InterWinner** provides different analysis engines for Germanium, NaI, LaBr and CZT based gamma spectroscopy as well as solid state Alpha spectroscopy. **InterWinner** is available in versions to support several or all of these detector types.

**InterWinner** controls all detector, amplifier and ADC setup parameters as well as data acquisition parameters and spectrum storage. **InterWinner** incorporates complete qualitative and quantitative analysis containing modules for all auxiliary data files necessary for thorough interpretation, research and sophisticated report generation. Through a multi-document based user interface, **InterWinner** offers the possibility to display in multiple windows as many as 1024 different

spectra and an unlimited number of regions of interest of any of the individual spectra. Spectra currently in acquisition or loaded from hard disk are shown and can be handled synchronous, while all the auxiliary data files (such as isotope tables) are handled in the same interface plus many can be loaded parallel.

## User Interface Features

**InterWinner** is not bound to the MCA hardware delivered by Itech Instruments but can be used with nearly every commercially available MCA with the same full hardware functionality and spectral analysis. **InterWinner's** user interface allows for effective management of spectra and data. The tool bar includes all necessary and useful functions for the currently selected file or live spectrum acquisition. The icon bar displays the real time status of all inputs. These

on-screen aids make **InterWinner** a powerful and easy to use tool for modern nuclear spectroscopy.

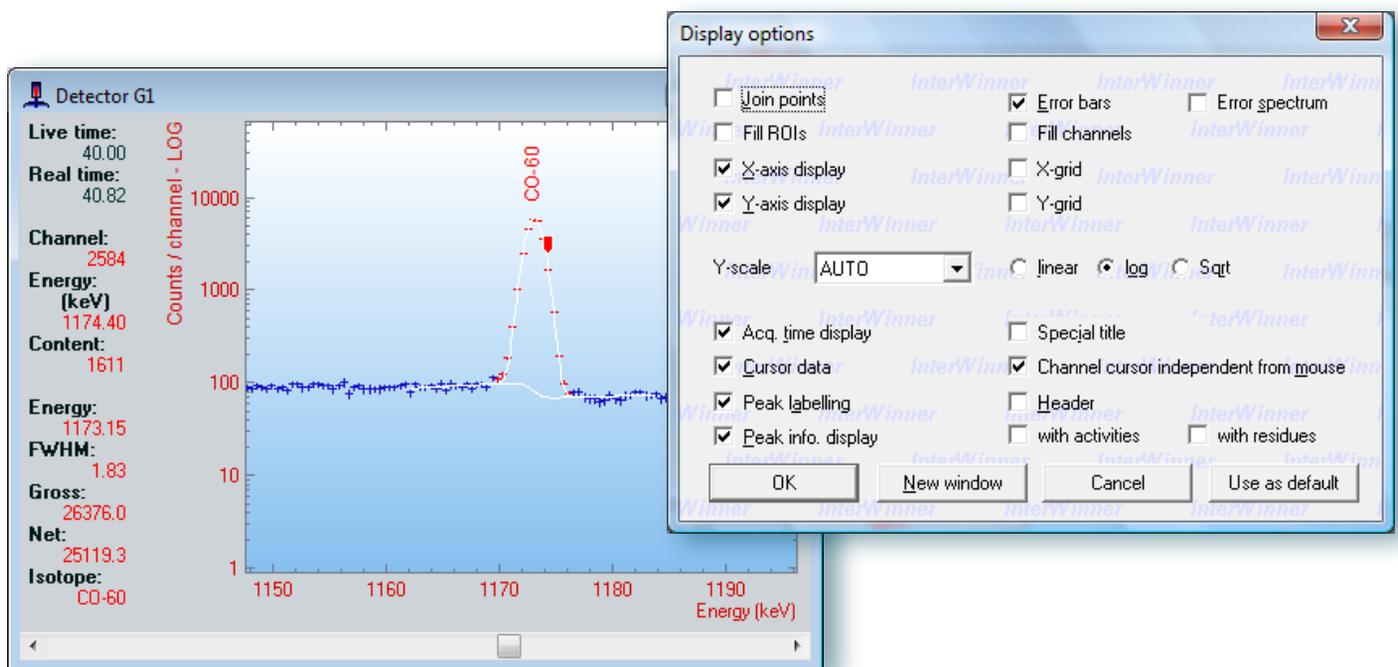
**InterWinner** not only provides the simultaneous display of different spectra and auxiliary files but also ensures effectiveness through various helping devices in the area of spectrum analysis and particularly useful means to be fitted for the needs of multiple users without interfering with analysis quality.

In a spectrum **InterWinner** is capable of labelling peaks automatically plus peak fit, peak areas and activi-

ties will be shown if desired. During the acquisition all these afore mentioned data will be frequently updated.

For the desired presentation of spectrum, **InterWinner** offers the user a wide range of display modes. You can chose to have the channel points joined and peaks filled, or not. The display can include a grid with choice of horizontal or vertical lines or both and the X and Y axes can be shown or hidden.

The vertical scale offers auto ranging in the linear, square root or log styles. The horizontal axis will



toggle between energy and channels. The Display options dialog box also includes the choice of displaying other relevant information for both full spectrum and individual region of interest and peak data.

Once the manager or user settles on a particular list of display options, these settings can be set into the user defaults. **InterWinner** includes the option of allowing the spectroscopist the ability to write notes or annotations directly into the spectrum display and allowing these comments to be printed and stored with the spectrum. Furthermore parameter files allow preparing all of the acquisition and analysis parameter in advance. In reports shown on the screen hypertext links (marked in green) lead the user fast to the re-

quired information. For example, clicking on a peak energy in the report opens a spectrum window which shows the peak concerned. Sample changer control is also available. This module allows for preparing the acquisition and analysis parameters for up to 100 samples which will then be processed automatically.

**InterWinner** also includes a spectrum finder function which is used to find a spectrum on disk using many different criteria such as acquisition date range, reference date range, comments, or other criteria.

The **InterWinner** interface can be controlled and modified using the integrated scripting language. User specific buttons can be added to

the tool bar and menus can be adapted by adding, removing or replacing menu items.

**InterWinner** always includes English, German and French languages. Users can define the settings for language, color and display modes independently. The analysis of any spectrum in InterWinner can be started during its acquisition and is frequently updated while the new data is acquired. This includes both qualitative and quantitative analysis. Thus peak search and ID allows for quick ID of peaks as the statistics allow and the various peak fitting and deconvolution techniques available in InterWinner will occur automatically if desired.

Energy and resolution calibration can be performed and the parameters can be stored, either manually, library assisted or fully automatically. A calibration report is produced and will be accessible through an hypertext link from the analysis report of every spectrum analyzed with this calibration.

**InterWinner** fits peaks and deconvolutes multiplets. The model peak used can be parameterized and depends on the detector and analysis types thus giving the best results for Germanium, Sodium iodine and Alpha grid chamber or Alpha semiconductor detectors.

## Main Analysis Features

In **InterWinner** the activities are calculated per line and also averaged over all lines of the radionuclide. The results are shown on screen, and are available for printing or transfer to a data base. Data bases directly compatible are either text form (CSV) or ODBC controlled data bases, including Microsoft Access and SQL Server.

For every gamma analysis performed with Inter Winner, the following corrections are always considered:

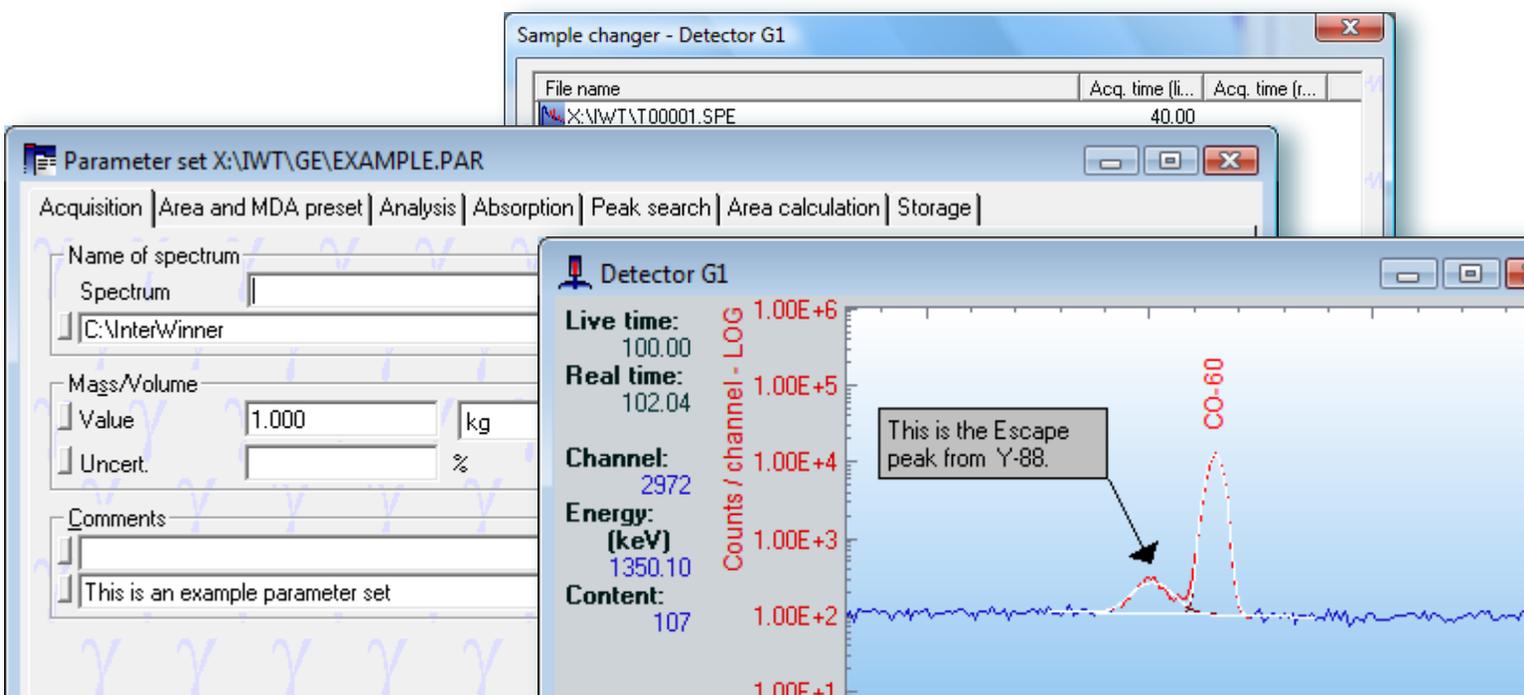
- ▶ Isotope gamma emission probability using user-modifiable isotope libraries
- ▶ Energy dependant efficiency correction
- ▶ Spectrum/Compton background subtraction
- ▶ Either background peak subtraction or background spectrum correction
- ▶ Decay correction including parent/daughter in-grow determination
- ▶ Correction for absorption inside the sample and between sample and detector (self-attenuation and attenuation shield)

**InterWinner** features an interactive analysis including a graphical display of the calculated background and fit and the possibility to insert or suppress peaks manually.

An efficiency calculation and modelling tool, named **WinnerTrack**, is available as add-on. This tool takes the information about the detector details and lets the user model his acquisition setup using an interactive three-dimensional display. It then calculates an efficiency curve which can be used in **InterWinner** in the same way as an experimental curve.

**WinnerTrack** is available for NaI and Germanium detectors.

**WinnerScan** is a tool which creates charts showing activity vs. time or space. It can be used in an online-mode where **WinnerScan** controls the acquisition and also in an offline mode where acquisitions are made manually and later imported into the **WinnerScan** file.



## Ordering Information for **InterWinner**

### Basic Packages

#### **InterWinner/G**

- ▶ Basic program with germanium analysis and one input

#### **InterWinner/A**

- ▶ Basic program with Alpha analysis and one input

#### **InterWinner/N**

- ▶ Basic program with NAI analysis and one input

### Additional inputs

#### **InterWinner/+1**

- ▶ One input more for InterWinner/G or InterWinner/N

#### **InterWinner/+1A**

- ▶ One input more for InterWinner/A

A discount is given on simultaneous purchase of two analysis packages on one system/dongle.

### Add-ons (these require one of the above)

#### **WinnerSample**

- ▶ Sample changer extension.

#### **WinnerScan**

- ▶ Activity vs. time or space charts. On-line and offline mode available.

#### **WinnerComm**

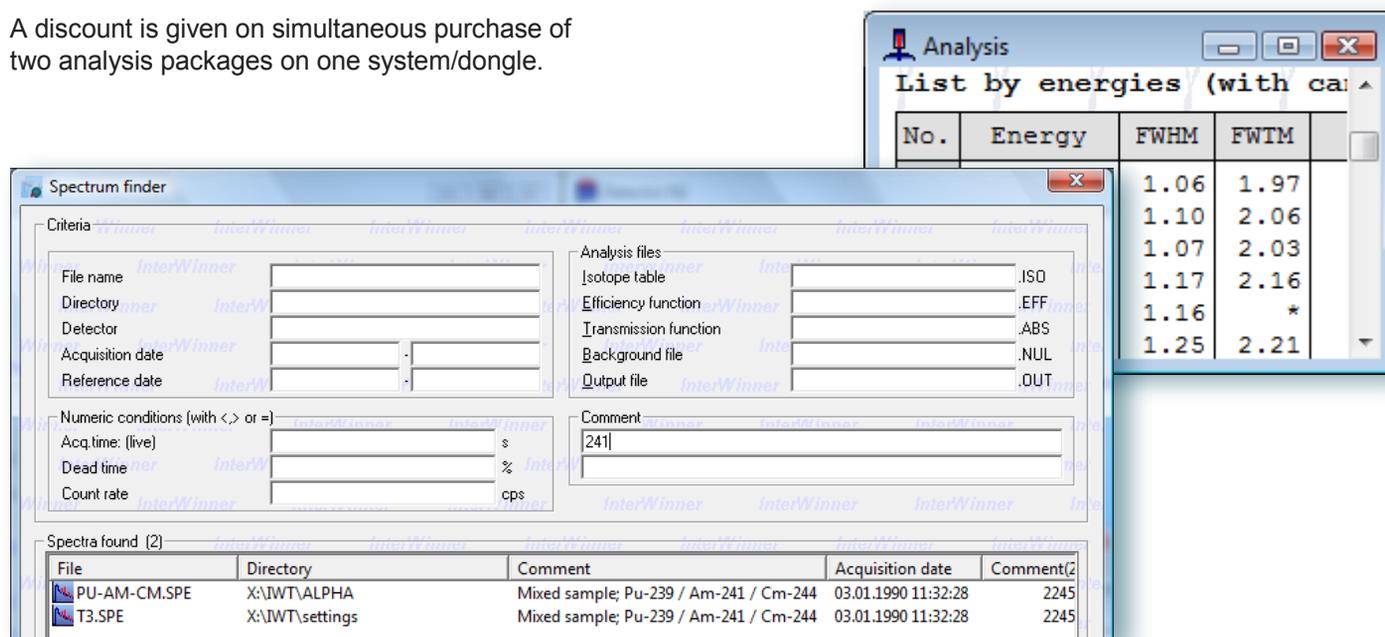
- ▶ Provides control of InterWinner from external programs using ComAutomation, ActivX, DDE or TCP/IP.

#### **WinnerReport**

- ▶ Tool to create custom reports. Uses an external RTF-capable word processor. (e.g. Winword)

#### **WinnerTrack**

- ▶ This software is used to calculate the efficiency curve based on the sample geometry.



The screenshot displays two windows from the InterWinner software. The 'Spectrum finder' window is in the foreground, showing search criteria and a list of found spectra. The 'Analysis' window is partially visible behind it, showing a table of energy peaks.

**Spectrum finder - Criteria**

File name:   
 Directory:   
 Detector:   
 Acquisition date:  -   
 Reference date:  -   
 Numeric conditions (with <, > or =):  
 Acq. time: (live)  s  
 Dead time  %  
 Count rate  cps

**Analysis files**

Isotope table  .ISO  
 Efficiency function  .EFF  
 Transmission function  .ABS  
 Background file  .NUL  
 Output file  .OUT

**Comment**

[241]

**Spectra found (2)**

File	Directory	Comment	Acquisition date	Comment(2)
PU-AM-CM.SPE	X:\IWT\ALPHA	Mixed sample; Pu-239 / Am-241 / Cm-244	03.01.1990 11:32:28	2245
T3.SPE	X:\IWT\settings	Mixed sample; Pu-239 / Am-241 / Cm-244	03.01.1990 11:32:28	2245

**Analysis - List by energies (with ca)**

No.	Energy	FWHM	FWTM
		1.06	1.97
		1.10	2.06
		1.07	2.03
		1.17	2.16
		1.16	*
		1.25	2.21

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