Digitizer

Last revised: 2013-05-17

The program can automatically digitize a graph from a bitmap image under the following conditions:

- **Only continuous lines (as opposed to dashed or dotted lines) can be digitized**
- **If there is an overlapping of multiple curves, their color or brightness must differ**
- **The background of the graph (especially gridlines or texture) must have a different color or brightness**
- **The coordinate axes need not be exactly aligned horizontally/vertically, but the curve is assumed running from left to right**
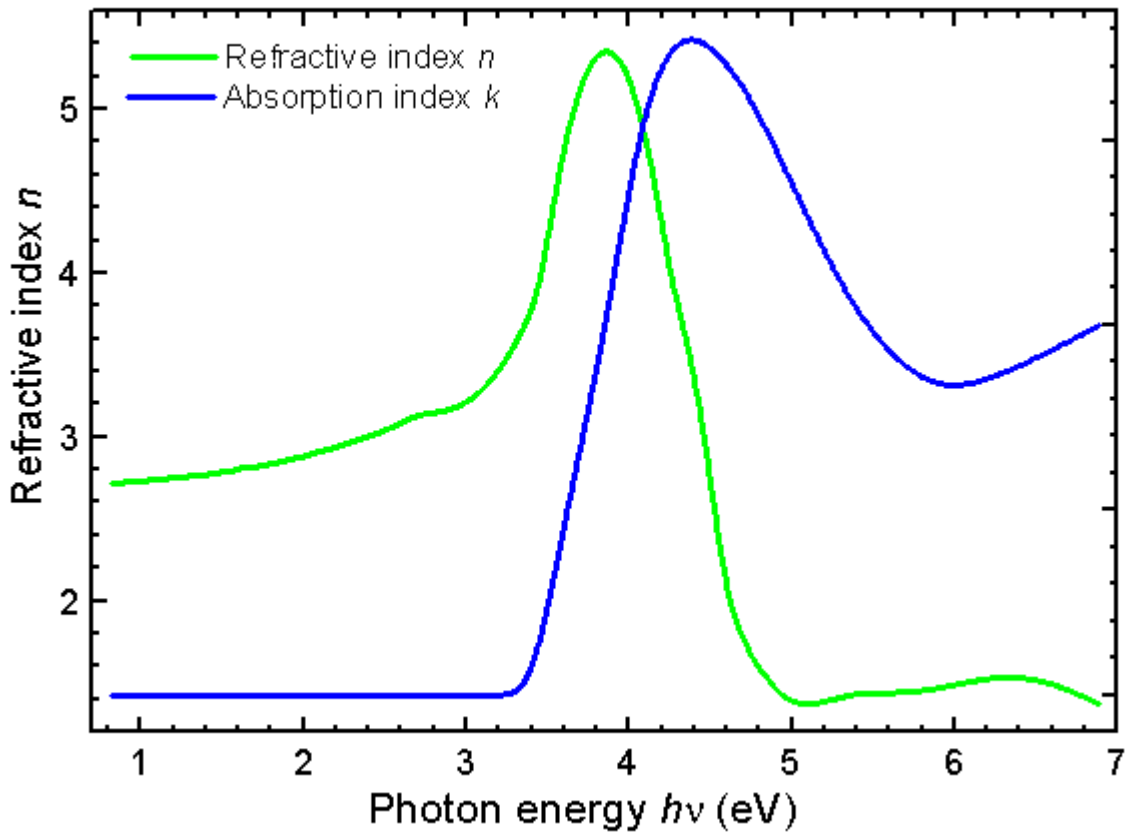
▶ Helper functions

=============== Load image ===============

$$\text{Load} := \begin{bmatrix} \text{FILE} & \text{"Test.gif"} \\ \text{CROP} & (0 \quad 0 \quad 60 \quad 0) \end{bmatrix}$$

Click here for help

▶ Processing

▶ Processing

Properties of selection:

Position = (81   283)

Area = (74   277   87   289)

Color = (0   255   0)

$$\text{Digitize} := \begin{bmatrix} \text{METHOD} & \text{LINE} \\ \text{START} & (73 \quad 276 \quad 87 \quad 290) \\ \text{END} & 547 \\ \text{MODE} & \text{COLOR} \\ \text{DEV} & 0.1 \end{bmatrix}$$

Digitized curve in pixel coordinates
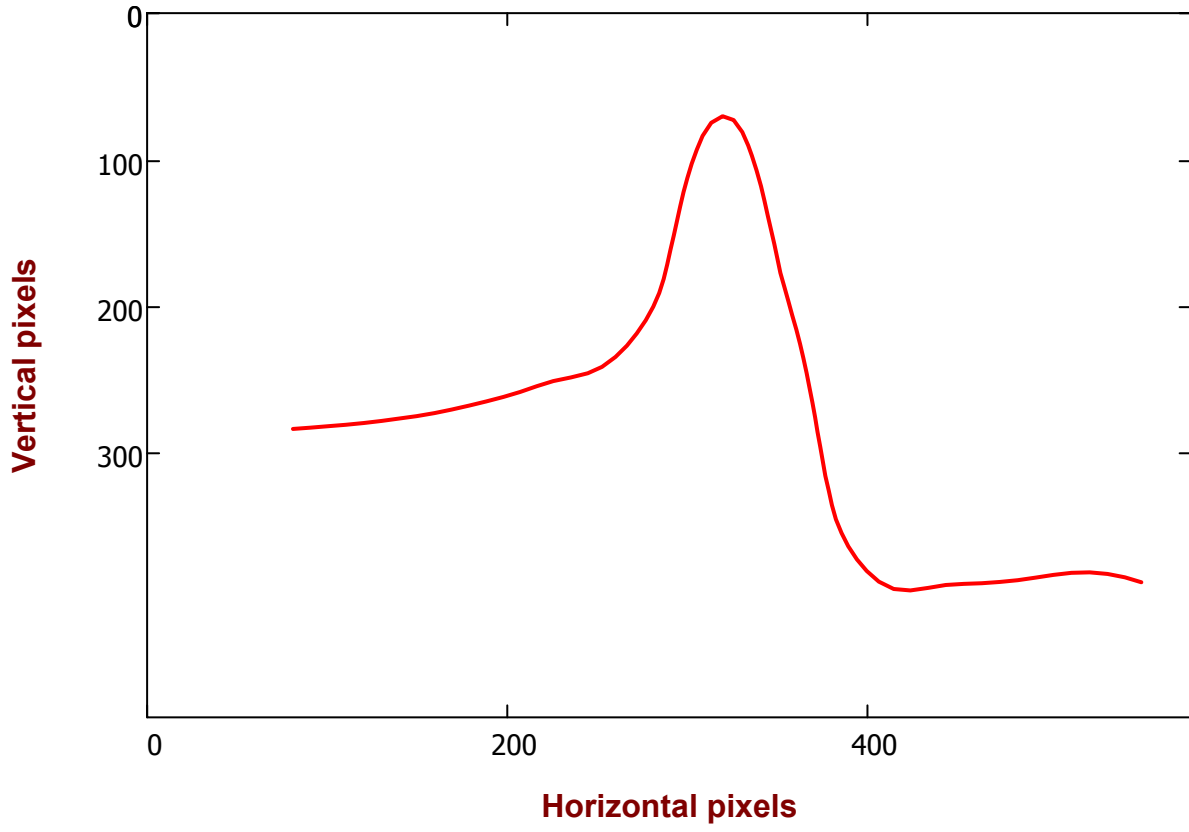
========== Coordinate transform ==========

**At least 3 pairs of points are required for <u>coordinate transform</u>**

$$\text{Transform} := \begin{bmatrix} \begin{pmatrix} 87 \\ 406 \end{pmatrix} & \begin{pmatrix} 493 \\ 407 \end{pmatrix} & \begin{pmatrix} 87 \\ 47 \end{pmatrix} & \begin{pmatrix} 493 \\ 48 \end{pmatrix} \\ \begin{pmatrix} 1 \\ 1.2 \end{pmatrix} & \begin{pmatrix} 6 \\ 1.2 \end{pmatrix} & \begin{pmatrix} 1 \\ 5.6 \end{pmatrix} & \begin{pmatrix} 6 \\ 5.6 \end{pmatrix} \end{bmatrix}$$

← **Pixel coordinates**

← **Graph coordinates**

▶ Processing ──────────────────────────────────

Digitized curve in graph coordinates

X-coordinate / Y-coordinate
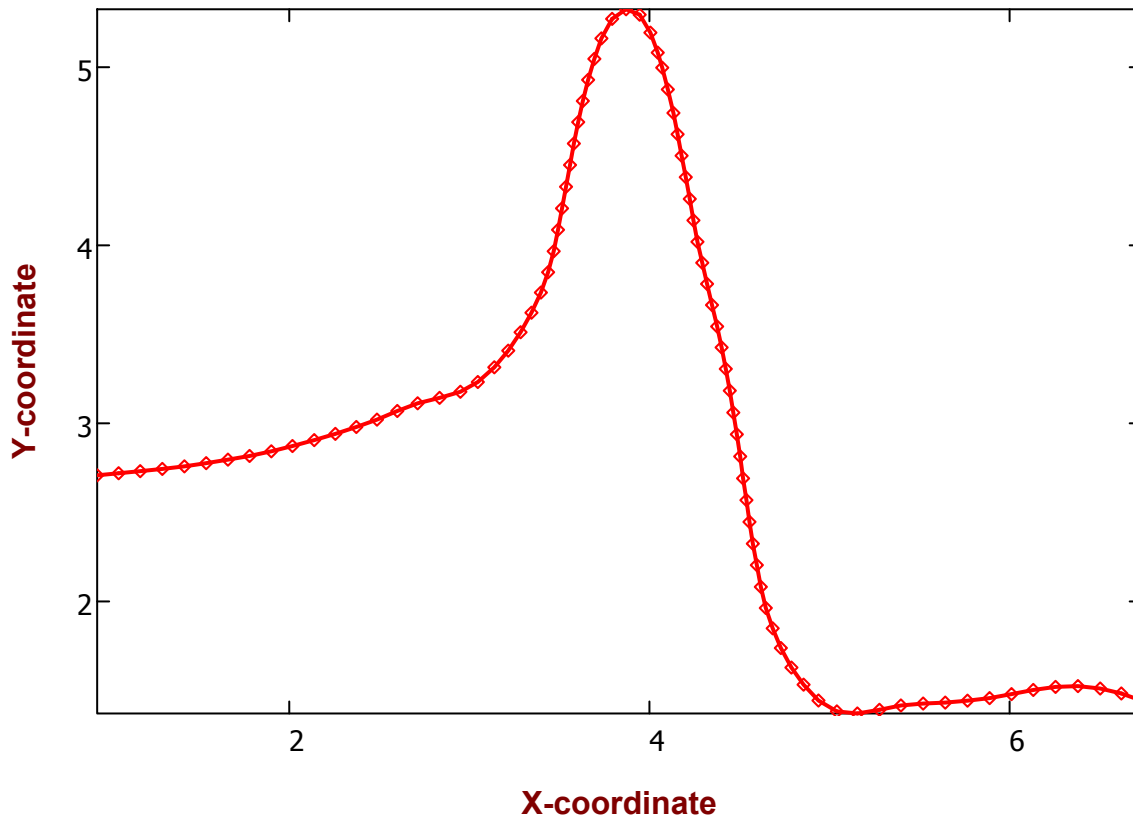
▶ Processing ──────────────────────────────────

Digitized curve was written to the file ResultsFile = "Test.digitized"

===================== End of Program =========================