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Information about "Particles system generator"

The main task of the particles system generator is the generation of artificial pictures with particles which distributions of shape parameters are known in advance. For convenience, the software is functionally divided into 4 parts (tools), each of which provides a part of the functionality, either to work out any specific algorithms or directly to generate the final images. Table 2 provides information on the developed tools with the necessary explanations.

Table 1. Tools of the developed particles system generator software

№	Name of the tool	Additional information
1	Particle tester tool	Using for test of the different algorithms of determination of irregular shape parameters such as circularity, convexity, elongation and others.
2	Particle finder tool	Provides functionality of the search algorithm (Particle swart optimization) for searching the particle shape with the desired shape parameters. The algorithm is solving so called the reverse problem.
3	Particles generator tool	Using the functionality of the first two tools this tool is able to generate the desired amount of irregular shape particles which distributions of shape parameters if known in advance.
4	Pictures render tool	Using the data about particles generated with particle generated tool, this tool is able to render the set of final pictures with desired size, scale, colors and blur.

The main application window is designed for easy launch of the previously described tools. The main window interface is illustrated in Figure 1.
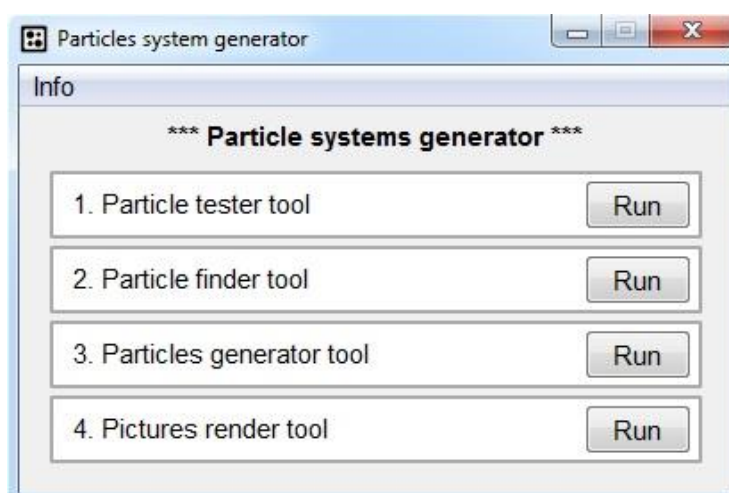

Figure 1. Main window of the particles system generator software.

Main menu of the particles system generator and the features it provides is described in Table 4.

Table 2.   Description of the pictures render tool menu.

Menu item	Icon	Shortcut	Description
Info menu			
Help		Ctrl + H	Open a .pdf file with help information about the tool.
About		Ctrl + A	Open window with some important information about the tool version and its developer.