Optaglio develops mathematical simulation for smarter hologram design

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High-resolution security holograms firm Optaglio has announced meeting a key milestone in its holograms mathematic simulation project, delivered together with Ostrava Technical University.

The firm expects the results of the project to shorten a time for new ID documents launch. They will also enable the creation of protection elements that are small artworks and abundantly use visual features that cannot be imitated.

Instead of the laser, Optaglio uses a stream of electrons for the creation of its holograms. This stream is directed by mathematic algorithms that cannot be derived from the hologram. An extremely subtle structure is thus generated that reflects light and creates holographic visual illusions.

With mathematical simulation, even before the creation of the hologram all details and aspects can be examined, such as the appearance of illusion objects in different coloured light, different angles of coming light, different intensity etc. Graphical designers, marketing experts and security trainers will thus be able to take part in an informed discussion about design.

In addition to that, it can be identified what other holographic methods would lead to similar visual effects. It will help to create design at which point most important

Simulation enables comparing visual effects reached through different holographic technologies and designing hologram so that the central optical element is distinguishable easily a and it imitation is extremely difficult. Holograms designing has been based only on intuition and experience until know. Occasionally it was necessary to create several versions before the result was entirely satisfactory.

The simulation tools currently cover Optaglio´s 3D effects. They will be extended step by step to include all kinds of holograms, effects and mastering technologies.

"During the last year, we have introduced several innovations that enhance advantage over falsifiers. However, it is critical to create a design that applies these innovations, uses them fully and can be easily recognised by inspectors. The simulation is an important tool for creating such design," says Dr. Tomas Karensky, Senior Research Manager in Optaglio. "I believe that it will be also interesting for brand protection. Premium brand manufacturers need to move from protection as a defensive cost to protection as a key element of design. Simulation can help significantly also in this area."