

Potential Impact

Strategic Impact

The proposed type of camera is of high scientific interest, as it will enable considerable progress in a number of research fields, and open new ones as well. In addition, we foresee a substantial economic impact in the long run, as there are a large number of industrial applications with a clear societal benefit and potential markets.

The following research and applications fields are very likely to be enabled by this type of ultra-fast, single-photon camera:

Research Fields
Application Fields
Cellular and sub-cellular imaging
Fluorescence Activated Cytometry
Neural imaging (synaptic activity, cortex activity, neuro-scanning technology)
X-ray Tomography
Storage devices
Parallel Fluorescence Imaging (FCS, FLIM, FRET)
Biochemical Sensors
Proteomics
DNA/protein Microarray Scanning
High speed phenomena and image compression (shock waves, spray formation, combustion, vibration, destruction/collision, electrical discharge, plasma, high speed motion)
Miniature staring 3D cameras/imaging telemetry
Automotive collision studies, Engine/turbine design, Aircraft rotor turbulence studies
3D Cameras: Cockpits with advanced interfaces, Simulators (avionics, spacecrafts), Aids for disabled people
Ultra-high dynamic range astronomical observation
High-sensitivity, low-light cameras
True random number generation
Novel optical communication devices