AUTHOR: **SOLOMON BUDNIK**

Affiliation: president, UTG-PRI LTD., Tel Aviv

Email: budnik1@013.net

Subject: **Research of Lunar Dust Properties for Quantum Electronics and Photonics**

Abstract

Lunar dust is levitated from the surface by powerful electrostatic charges generated by interplanetary radiation swirling across the landscape. In fact, electrical charges might even produce dust 'fountains'. As the rising Sun's light and radiation sweeps across the lunar surface it could generate large positive charges, enough to levitate dust particles of active metals a mile high, until they drop back, only to get levitated again like a pulsing fountain.

Research

1. We would accordingly investigate said levitating properties.

Investigations showed that lunar dust consist of meteorite particles of quartz and iron and other elements that are activated and levitated by the emissions of photoelectrons from the lunar surface which is charged **positive**, while the cloud of the photoelectrons above it is charged **negative**. Due to the difference of electric potential the electric field is created on the lunar surface and levitates the mini-particles of regolith – lunar soil.

In re: **Photoelectric Emission**. Electrons can be **emitted** from solids under irradiation with photons of sufficiently low wavelength. **Photoelectrons** are emitted when a single photon (quanta) of energy **hn** is absorbed by the solid, where **h** is Planck's constant and n the frequency of the light used. The *photoelectric effect* occurs when matter emits electrons upon exposure to electromagnetic radiation, such as photons of light.

Overview of the Photoelectric Effect

2. The photoelectric effect is studied in part because it can be an introduction to wave-particle duality and quantum mechanics. When a surface is exposed to sufficiently energetic electromagnetic energy, light will be absorbed and electrons will be emitted.

Einstein's Equations for the Photoelectric Effect

Einstein's interpretation of the photoelectric effect results in equations which are valid for visible and ultraviolet light:

energy of photon = energy needed to remove an electron + kinetic energy of the emitted electron

$h\nu = W + E$

where

h is Planck's constant
v is the frequency of the incident photon
W is the work function, which is the minimum energy required to remove an electron from the surface of a given metal: hv_0
E is the maximum kinetic energy of ejected electrons: $1/2\ mv^2$
$\mathbf{v_0}$ is the threshold frequency for the photoelectric effect
m is the rest mass of the ejected electron
v is the speed of the ejected electron

Key Features of the Photoelectric Effect (FE)

3. The rate at which photoelectrons are ejected is directly proportional to the intensity of the incident light, for a given frequency of incident radiation and metal. No electron will be emitted if the incident photon's energy is less than the work function.

Applying Einstein's special theory of relativity, the relation between energy (E) and momentum (p) of a particle is

$$E = [(pc)^2 + (mc^2)^2]^{(1/2)}$$

where **m** is the rest mass of the particle and **c** is the velocity of light in a vacuum.

4. So in our research we would try to develop superconducting and levitating elements based on FE, its upward kinetic energy and my new quantum field theory to create substances and devices that would enable large and heavy objects to levitate, to be used in infrastructure projects, manufacturing, telecom,transportation, manufacturing, renewable energy, aerospace, defense, etc .