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Hörsaal für Physik

“On the Reverse Problem and Some Quantum Effects in Ion Desorption from Ionic Crystals

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It is well known that irradiation of the solid with electrons or photons can cause its decomposition. This process, or, more adequately processes, are very fast (typically finalized within time shorter than 10^{-14} s) and are realized mainly by desorption of atoms or ions. In the case of ionic crystals, especially when the ions desorption is followed by interatomic Auger's transitions, three potentials are involved in the desorption process.

In this talk a classical, quasi-quantum and quantum description of the positive ion desorption from ionic crystal surface will be discussed and compared. It will be shown that the quantum description allows us to explain some effects observed experimentally, such as a periodicity of small oscillations on the kinetic energy distribution curves (predicted by Wave-Packet Squeezing model [1]) and emission through a temporarily existing potential barrier from the temporary bounded states located above the vacuum level.

[1] L. Markowski, *Applied Surface Science* 254 (2007) 16.