

BIOPHOTONIC

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electroluminescence

job report

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order data

Sample: 1: Spring water from Sittersdorf
 2: The same water after UV treatment 3:
 Water #2 energized with a UMH
 Water treatment device ³/₄

measurement date:	17-22/12/2003
Report date:	12/22/2003
Responsible person	Sophia Cohen

test execution

principle

Electroluminescence is the measurement of the recombination glow of an electric current generated by the application of a voltage. When ions combine with electrons, an excitation state of the recombination product is initially created.

During the transition to the ground state, a photon is emitted that can be measured with highly sensitive light detectors (photomultipliers). The recombination glow is sensitively dependent on all physical properties of the liquid. That is the reason why this sensitive method can be used to detect the slightest differences in quality in liquids in a highly sensitive and at the same time reliable manner.

method

The measurements were carried out in our electroluminescent device (PMS 2). A 102 ml water sample was placed in a bottle made of optical glass and placed in the dark chamber of the meter. After dark adaptation, electrical excitation was carried out via two platinum electrodes immersed in the sample solution. The photon emission of the electroluminescence was measured with a photomultiplier during the entire measuring time.

2 or 3 measurements were carried out per sample.

Measurement data:

Waiting time (dark adaptation):	1 min
Measurement interval:	100ms
excitation duration:	4s
excitation voltage:	50 volts

Measurement results

The results are shown in the table and in the figures.

Table: Mean values of all tests

	mean values while suggestion, C/100ms	scattering C/100ms	mean values after suggestion, C/100ms	scattering C/100ms
spring water	330	20	102	5
spring water + UV	476	9	116	5
source +UV+UMH	323	3	31	1

The results show that the UV treatment brings a significant difference (Fig.1-2). The electroluminescence values during excitation have become higher. The additional treatment with the UMH device not only eliminates the increase in electroluminescence values after UV treatment, but even leads to lower values at the end of the excitation. So the water has changed.

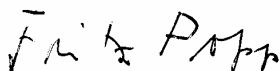
Applying a voltage creates charge carriers (ions and electrons) in the liquid, which recombine again after their formation. Each of these recombination processes generates a photon, since after recombination the neutral molecule is initially formed in the excited state, which then returns to the ground state through the emission of a photon. Our device, which can register single photons, "observes" the recombination glow throughout the liquid and displays a signal intensity that increases with the frequency and proximity of the recombination processes to the detector. This way you can

differences can also be determined when conventional methods can no longer detect any differences.

In the present case, excitation of the spring water with UV light considerably increases the recombination glow, certainly because the number of recombination processes increases significantly due to partial ionization of the liquid (easier generation of charge carriers). Apparently, metastable states – these are energetically excited states with a relatively long lifetime – are also involved in this process. Otherwise the long lifetime of the UV excitation could not be explained. At the same time, this indicates the purity of the liquid. In the case of contaminated liquids, these states decompose much faster because of the impact processes with foreign molecules. The later UMH treatment seems to accelerate these processes of non-radiative transitions into lower-energy states, i.e. to extinguish existing charge carriers through non-radiative transitions. This leads to a "relaxation" or "relaxation" of the excited liquid. In terms of energy, these processes are less important for biology than they are "informatically". In any case, the interaction of water with the cells is energetically much less important than influencing the state of order in the cell structure. More about these processes could only be understood after careful analysis (changes in the applied voltage in the liquid and changes in the liquid caused by quenchers). That requires a research project. The questions cannot be answered based on mere suspicion. In terms of energy, these processes are less important for biology than they are "informatically". In any case, the interaction of water with the cells is energetically much less important than influencing the state of order in the cell structure. More about these processes could only be understood after careful analysis (changes in the applied voltage in the liquid and changes in the liquid caused by quenchers). That requires a research project. The questions cannot be answered based on mere suspicion. In terms of energy, these processes are less important for biology than they are "informatically". In any case, the interaction of water with the cells is energetically much less important than influencing the state of order in the cell structure. More about these processes could only be understood after careful analysis (changes in the applied voltage in the liquid and changes in the liquid caused by quenchers). That requires a research project. The questions cannot be answered based on mere suspicion. More about these processes could only be understood after careful analysis (changes in the applied voltage in the liquid and changes in the liquid caused by quenchers). That requires a research project. The questions cannot be answered based on mere suspicion. More about these processes could only be understood after careful analysis (changes in the applied voltage in the liquid and changes in the liquid caused by quenchers). That requires a research project. The questions cannot be answered based on mere suspicion.

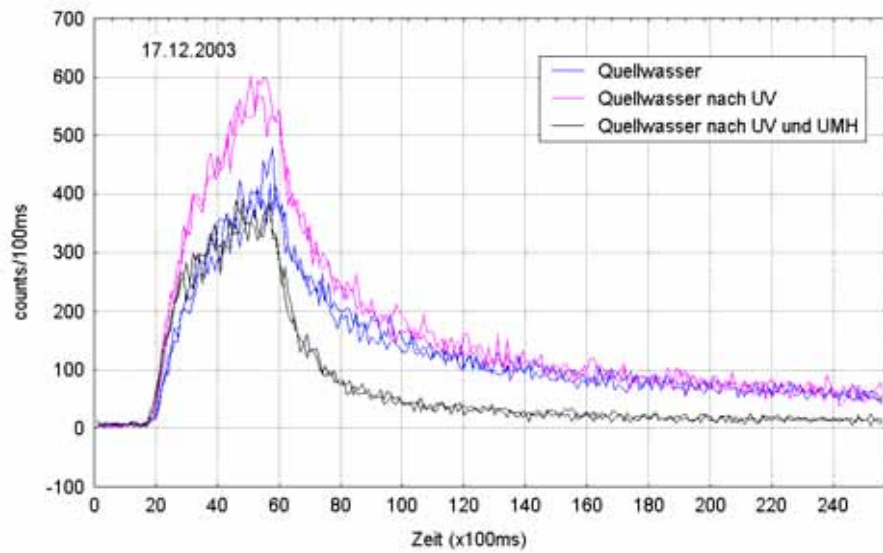
The clarity of the effects, which probably cannot be achieved with other methods, is astonishing.

Kind regards,

A handwritten signature in black ink, appearing to read 'Fritz Popp'.

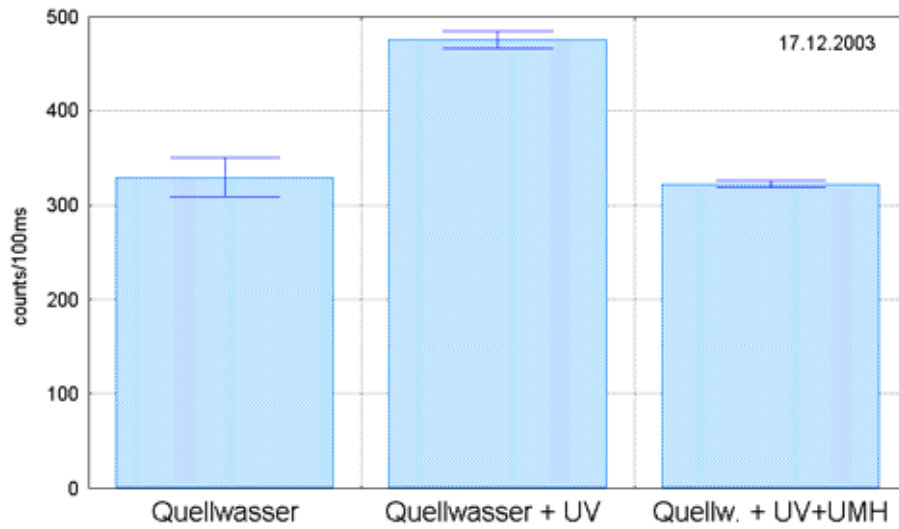
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Elektrolumineszenzkurven von Quellwasser



Elektrolumineszenz von Quellwasser

Mittelwerte während Anregung



Elektrolumineszenz von Quellwasser

Mittelwerte nach Anregung

