

## ABSTRACT

REPORT ON VI INTERNATIONAL CONGRESS WEAK AND SUPER WEAK FIELDS AND RADIATIONS IN BIOLOGY AND MEDICINE, ST. PETERSBURG, RUSSIA, JULY 2-6, 2012.

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The Morré's were privileged to have been invited to attend the VI International Congress "Low and Superlow Fields and Radiations in Biology and Medicine" July 2-6, 2012 in Saint Petersburg, Russia organized by Lydia Gall (Chairman) and Andrej Drozdov (Scientific Secretary) and to present our findings on ortho-para spin pair oscillations of water and the basis both for biological time-keeping and coherent populations of water to an audience both critical of and receptive to new paradigms. The topics of water coherence and ortho-para spin isomers were highlighted to the opening sessions of the conference with presentations of Dr. Emilio Del Giudice on "Emergence of quantum coherence in liquid water", S. M. Pershin "Quantum difference of H<sub>2</sub>O spin isomers", Andrej Drozdov "Dynamics of intermolecular interactions in water", Stanislav Zakharov on "Nuclear spin isomers of H<sub>2</sub>O molecules as a possible cause for spontaneous compartmentation of liquid water into time-space clusters" and later on, light-oxygen effects with A. V. Inavov. Approximately half of the subsequent sessions were devoted to biological and medical applications of weak and super weak fields and radiations ranging from adverse effects of mobile phones to human brain rhythms, heart beat rate variability, cardiovascular disease, orthopedics, seed germination, waste water management and homeopathy. For the latter, the concept of water structure having a memory component was of special interest. Exclusion zone and coherence domains (EZ – water) were ably presented by V. L. Voeikov and E. Del Giudice as was biological effects of electromagnetic waves by E. E. Fesenko (also R. Sarimov and V. Binhi). Our work was summarized together with new findings demonstrating that water molecules communicate with each other over very long distances via low frequency electromagnetic fields generated by ortho/para spin oscillations of ortho/para spin pairs of water hydrogens. Analyses of water luminescence data in collaboration with the laboratory of Stanislav Zakharov revealed multiple sinusoidal periodicities with period lengths in multiples of 1.2 sec with significant maxima observed at period lengths of 2.4, 3.6, 6, 12, 24, 36, 48, 72 and 96 sec. Relative contributions of each were summed algebraically to generate a hypothetical carrier wave which was periodic but no longer sinusoidal. Revealed was the characteristic 2 + 3 oscillation pattern with a period length of 18 min with two of the maxima separated by an interval of 6 min. This pattern of oscillations characterizes the oscillatory fluctuations in redox potential underlying the oxidation of NADH associated with the ultradian driver of the cell's biological clock.

Morré, D.J., Morré, D.M. (2012) Water in biological time keeping. In: Pepper, D.W., Brebbia, C.A., (eds.) Water and Society. WIT Press, Southampton, Boston. pp. 13-23.