

POSSIBLE OBSERVATION OF TRANSFORMATION OF ELEMENTS IN CAVITATED WATER*

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We carried out two experiments of cavitating water. In the first one, we subjected to cavitation a sample of bidistilled and de-ionized water by means of new type of sonotrode with a very long working time (> 30 minutes). We analyzed the cavitated water by three different procedures (mass atomic absorption, cyclotron spectrometry and mass spectrometry). The analysis was confined to the stable chemical elements. We found relevant changes in the concentrations of the elements in the cavitated sample. In the second experiment, the water was cavitated by a standard sonotrode four times, and the cavitated water after each cavitation run was analyzed by means of a spectrometer in the mass range $210 < M < 270$. Evidence was found for an excess of identified masses in the transuranic region. Our results are similar, in many respects, to those obtained by Urutskoev *et al.* in the experimental study of electric explosion of metal foils in water. A possible connection with the recent Oak Ridge experiment on nuclear fusion induced by cavitation is also hypothesized.

1. Introduction

Acoustic cavitation of gaseous liquids consists in subjecting them to elastic waves of suitable power and frequency (in particular to ultrasounds).^{1,2} The main physical phenomena occurring in a cavitated liquid (e.g. sonoluminescence³) can be accounted for in terms of a hydrodynamic model based on the formation and the collapse of gas bubbles in the liquid.^{1,2} There is up to now no evidence for changes in the chemical composition of cavitated liquids. Two cavitation experiments we carried out recently^{4,5} by two different sonotrodes seem however to provide evidence for a significant variation of chemical elements in cavitated water.⁶

*Patent Pending on the transmutation procedure described in this paper.