

# A technique for quantitative measurement of acoustic cavitation generated by high pressure ultrasound

## Measurement technology of generated acoustic cavitation for development of ultrasound medicine

We have been studying quantitative measurement technique for acoustic cavitation in water. We have considered the use of broadband integrated voltage (BIV). BIV was calculated from the high frequency components of signals generated from the cavitation measured by a hollow cylinder type cavitation sensor. The result showed that BIV was dependent on the dissolved oxygen level in distilled water that was used as one of the parameters of the cavitation generation. Also, there was correlation between BIV and the amount of active oxygen species generated by the cavitation. This indicates that BIV has the potential to be used as an index of the amount of generated cavitation in water. In the future, this technique will be applicable to the ultrasound equipment such as an ultrasonic washing machine.

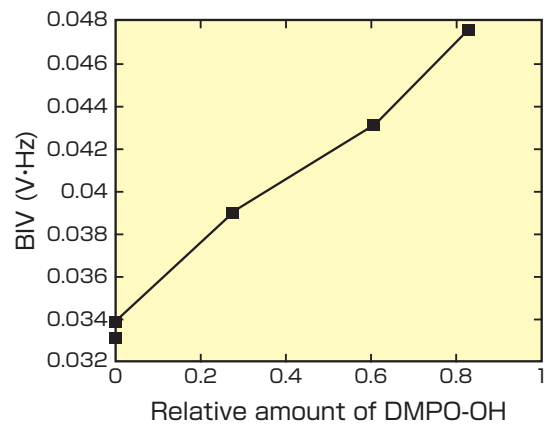
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Relationship between broadband integrated voltage (BIV) and the generated active oxygen species.



## In Brief

### Deputy Chairman of the Federation Council of Russia Visits AIST Tsukuba

On April 23, 2010, AIST Tsukuba was visited by Mr. Mikhail Efimovich Nikolaev, Deputy Chairman of the Federation Council of Russia, three members of the Russian parliament, and people of business in a party which totaled 14 people.

Deputy Chairman Nikolaev visited Japan on the invitation of Mr. Satsuki Eda, President of the House of Councillors of Japan. Apart from talks with Japanese politicians, he had interest in science and technology especially in robots for medical care. Concerning exchange of science and technology between AIST and Russia, he was highly interested in the exchange with the Russian Academy of Sciences, and Russian universities.

After hearing an overview presentation of AIST, he toured, with Vice-President Masakazu Yamazaki, Science Square TSUKUBA where he observed mainly robots, the therapeutic robot, Paro, the human nasal model for endoscopic surgery, and the myoelectric sensor.

During the tour, he tried the myoelectric sensor himself, and received explanation on how it can be applied to prosthetic arms. During his viewing of the “robotic arm for the disabled” of the Intelligent Systems Research Institute, the video presentation and the explanation by the researcher attracted his attention, and he expressed interest in practical implementations such as when it would be commercialized.



Deputy Chairman Nikolaev (second from right) and Vice-President Yamazaki