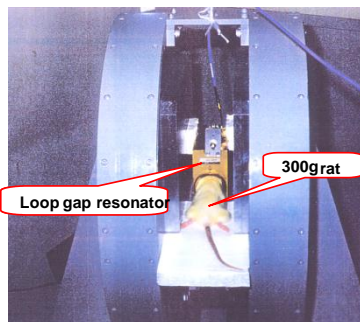


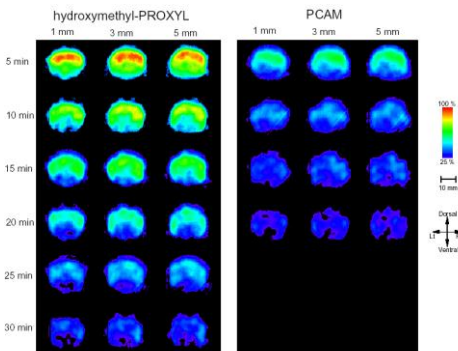
Development and application of new technology to observe redox function

Associate Professor Tomohiro Ito

In vivo ESR measurement of redox status in living animals

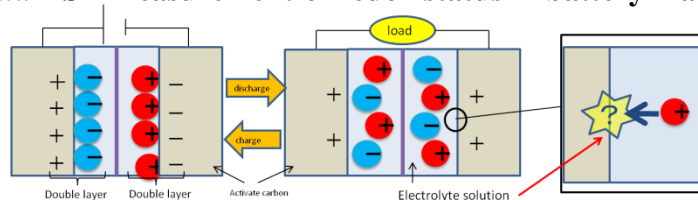


ESR imaging system

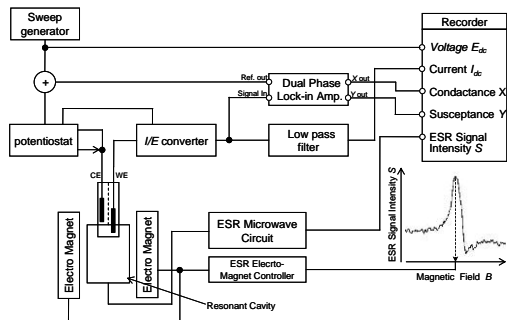


The time series of ESR images of the rat head.

In situ ESR measurement of redox status in battery material



The radical on the carbon of the capacitor electrode is evaluated by the ESR method.



Block diagram of *in situ* ESR measurement system



EDLC model Cell

Content :

Our group has developed a new ESR (EPR) technique, that is, the radio frequency ESR spectrometer equipped with an ESR imaging system. The advantages of this ESR system are the measurement of wet samples such as living animals such as a mouse or rat and the information of the redox status are obtained by the distribution of free radicals and the dynamics of spin-probe injected in living animals.

Second, our study is the development of new method for the evaluation of the battery materials using an ESR spectrometer. The purpose of this study is to investigate the relationship between the internal resistance of the capacitor and the generation of the radical by oxidation of the electrolyte solution.

Yamagata University Graduate School of Science and Engineering
Research Interest : Instrumentation Chemistry

E-mail : tomohiro@yz.yamagata-u.ac.jp

Tel : +81-238-26-3021

Fax : +81-238-26-3461

HP : <http://mri.yz.yamagata-u.ac.jp/>

