

## Construction of a PIXE database for supporting PIXE studies

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### Abstract

A database of PIXE data, which have been accumulated at NMCC, has been constructed. In order to fill up the database, data are newly obtained as many as possible for the kind of samples whose number is small. In addition, the data for different measuring conditions are obtained for several samples. As the number of  $\gamma$ -ray spectrum obtained with a HPGe detector for the purpose of analyzing light elements such as fluorine, is overwhelmingly small in comparison with that of usual PIXE spectra,  $\gamma$ -ray spectrum and elemental concentration of fluorine are obtained as many as possible for food, environmental and hair samples. In addition, the data taken with an in-air PIXE system have been obtained for various samples. As a result, the database involving contents over various research fields is constructed, and it is expected to be useful for researches who make use of analytical techniques. It is expected that this work will give a start to many researchers to participate in the database and to make calibration with each other in order to establish reliable analytical techniques. Moreover, the final goal of the database is to establish the control concentration values for typical samples. As the first step of establishing the control values, average elemental concentration and its standard deviations in hair samples taken from 405 healthy Japanese are obtained and tabulated according to their sex and age.