49. A Method of Measuring Ion Mobility Using an Alpha-ray Counter.

Kazunori Yuasa and *Ryutaro Ishiwari.*

As an application of the analysis of the pulse shape of alpha-ray counter, a method of measuring ion mobility of gas filled in the ionization chamber is described.

Since the output pulse height of the alpha-ray counter is represented by a function of the ion mobility of the gas according to the results of the analysis, we can estimate the value of the ion mobility by measuring the pulse height. A convenient device for the ionization chamber and the formula for the method are described in detail.

As an application of this method, the relation of the mobility to the age of ions and the effect of humidity were investigated in case of air. For the air dried by $CaCl_2$, we obtained

$$k_-=2.2$$
$$k_+=1.7 \quad : \text{age} > 1 \times 10^{-3} \text{ sec}$$
$$2.2 \quad : \text{age} < 2.5 \times 10^{-4} \text{ sec}$$

In the interval from 2.5×10^{-4} sec to 1×10^{-3} sec, fast and slow ions mixed together. As for the effect of humidity, our results were in good agreement with those of Tyndall and Grindly (Tyndall and Grindly, Proc. Roy. Soc., **110**, 341 (1926)).

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50. Application of the Schlieren Method.

The Mode of Covering and the Resolving Power.

Rempei Goto, Tsunekazu Hirota, and *Kihei Urakubo.*

The Schlieren method is a useful means to investigate the small change of the refractive index of transparent materials, and its applications to physics, chemistry, medicine and technology are remarkable now. Then, we also, utilizing a concave mirror, observed the figures of the "Schlieren" of some glass and films, and various modes of covering, changes of the figures were observed and photographed.

The samples used are optical glass, window panes and polyvinyl alcohol-viscose films (mixture of polyvinyl alcohol and viscose solutions, drawn out, and dried). As the light source we set a superhigh pressures 500 W mercury lamp and instead of the focusing lens, a concave mirror was used. (its diameter: 60