DOPISI LETTERS

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Mass Spectrometric Measurements of Xenon Fluorides

To the Editor:

The mass spectrometric analyses of xenon fluorides prepared by Slivnik *et al.*[1] were carried out with a modified Nier type mass spectrometer as described by Furman and Vrščaj[2]. The resolving power of the instrument was adjusted at about 200 which was sufficient for the present purpose.

Samples of xenon fluoride of about 100 mg. were introduced at room temperature into the ion source through a gasinlet system similar to the one used for the analyses of uranium hexafluoride[3]. Several hours after introduction of the xenon fluoride vapor the peak intensities of xenon isotopes more then 100 times greater then the corresponding peaks of XeF^+ were observed. The effect can be attributed to the reaction of xenon fluoride with CuO in the gas-inlet system and to the decomposition in the ion source. The peak-height ratio Xe^+/XeF^+ decreasses to 5:1 after 48 hours of continuous introduction of the sample into the mass spectrometer. Further work in this

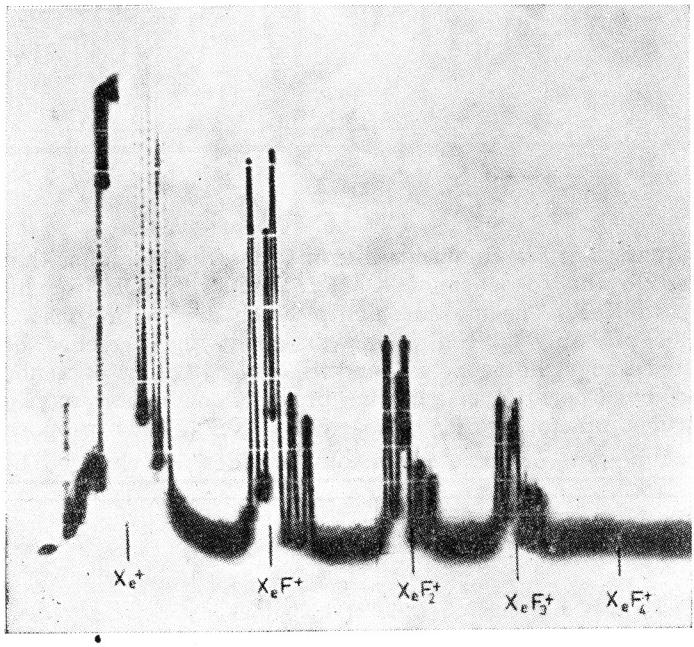

Fig. 1

field is needed to explain the observed effects in the mass spectrometric identification of xenon fluorides. The mass spectrum of xenon fluorides was scanned by varying the accelerating voltage and photographed on the CRT.

The complete mass spectrum of xenon fluorides is presented in Figures 1 and 2.

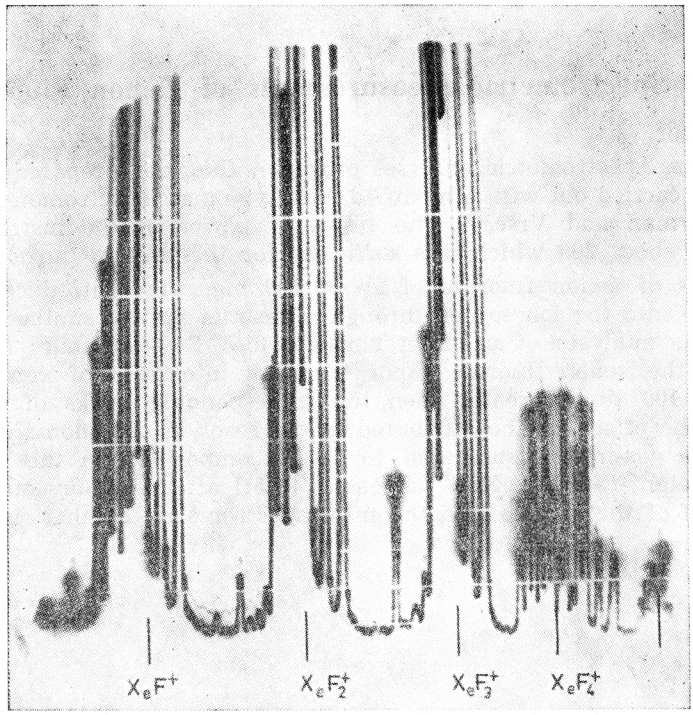

Fig. 2

The ion masses in Fig. 3. observed in the mass range higher than XeF_4 may be attributed to the presence of $XeOF_4^+$, $XeOF_5^+$, $XeOF_6^+$ or higher xenon fluorides up to XeF_8. The measurements which are in progress in our laboratory would probably give the answer about the presence of these ion masses formed under the reported conditions of synthesis of xenon fluorides[1]. As reported by Chernick *et al.*[4] the presence of xenon oxyfluorides and xenon fluorides up to $XeOF_4^+$ respectively XeF_4^+, was proposed.

The peak heights of some xenon oxyfluorides are changed by the background spectrum.

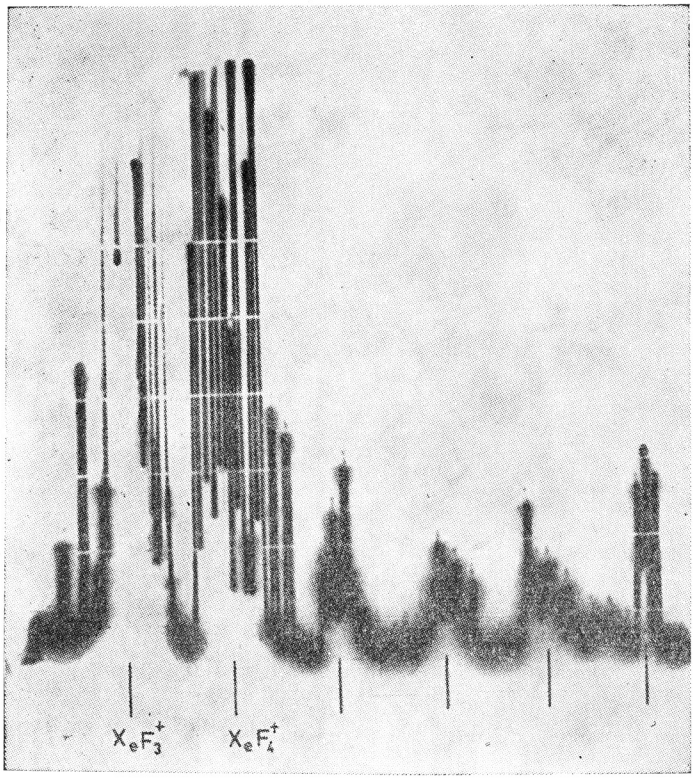

Fig. 3

Ljubljana, November 13, 1962.

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REFERENCES

1. J. Slivnik *et al.*, *Croat. Chem. Acta* **34** (1962) 187.
2. L. Furman and V. Vršč aj, *Reports J. Stefan Inst.* **4** (1957) 109.
3. L. Debevec *et al.*, *Reports J. Stefan Inst.* **5** (1958) 33.
4. C. L. Chernick, H. H. Claassen, P. R. Fields, H. H. Hyman, J. G. Malm, W. M. Manning, M. S. Matheson, L. A. Quarterman, F. Schreiner, H. H. Selig, I. Sheft, S. Siegel, E. N. Sloth, L. Stein, M. H. Studier, J. L. Weeks, and M. H. Zirin, *Science* **138** (1962) 136.

IZVOD DOPISA

Mjerenja na ksenonovu fluoridu spektrografom mase

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Prikazani su spektrogrami mase dobiveni na uzorku XeF_4. Maksimumi u području iznad položaja za masu XeF_4 pripisuju se ne samo oksifluoridima, već i višim fluoridima, do XeF_8.

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