



## **The study of the noble gases trapped in the meteorite from Chesau, Romania**

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The study of the noble gases, particularly of argon, was made on the meteorite fell near village Chesau, Romania. Experimental data were obtained by the step heating method. The analysis of the gases released from the meteoritic sample by heating was carried out by the quadrupol mass spectrometer type AMP-4.

The study of the experimental data shows that  $^{20}\text{Ne}$  was released in small quantities at relatively lower temperature. For the argon isotopes the released quantities were larger. Thus is proved the hypothesis of the preferential loss by diffusion at low temperatures of the lighter gases.

The experimental results show that this meteorite contains large amounts of trapped noble gases. The noble gases in meteorite consist of several individual components. Analyses of the neon and argon evolved by heating the sample to successively higher temperatures indicate that these gases are a mixture of three components: radiogenic, spallation produced isotopes and a primordial component. The isotopic composition of argon shows a primordial component for which  $^{36}\text{Ar}/^{38}\text{Ar} \geq 6,33$ . The experimental data show the differences between the argon isotope ratio of the meteoritic sample and the atmospheric argon. The isotopic fractionation of argon can be explained if we assumed that the diffusion of this gas outside from solid grain is assumed.

### **References**

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