

MASS-SPECTROMETRIC METHODS IN ISOTOPE GEOLOGY

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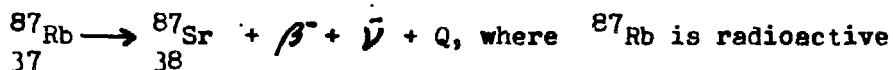
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Isotope geology—the scientific branch based on the mass-spectrometric studies of natural concentration of stable isotopes of some elements — is little known among the chemists. Considering its wide possibilities I'd like to pass you some information relating to this branch.

I. Isotope geochemistry — measurements of the variations of the stable isotopes H, C, N, O, S in natural materials. This method is for example used:

- in the geochemistry of ore-deposits, i.e. the determination of the source of H, O, C, S in hydrothermal solutions, the estimation of crystallization temperatures of minerals,
- in the geochemistry of sediments, i.e. the calculation of water temperatures in ancient oceans,
- in the environmental sciences, i.e. determination of the source of pollutions.

II. Geochronology methods — mass-spectrometric measurements of a stable daughter elements generated by a radioactive decay of a radioactive parents, for example



and decays to stable ${}_{38}^{87}\text{Sr}$. The other used dating methods /e.g. K-Ar, U-Pb, Nd-Sm/ are based on the same principles as above mentioned Rb-Sr method. All of dating methods are used to age determinations of the rocks from Earth, Moon and meteorites.