



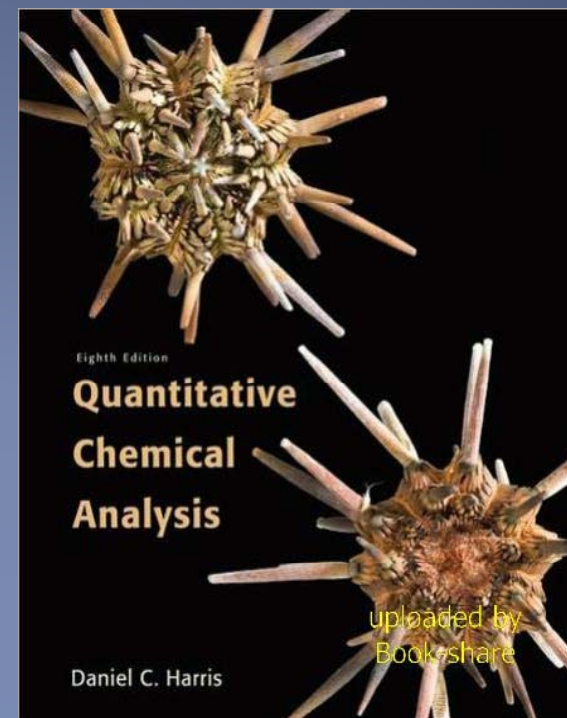
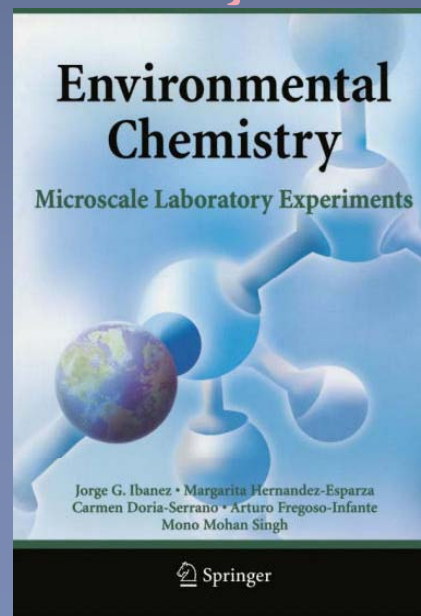
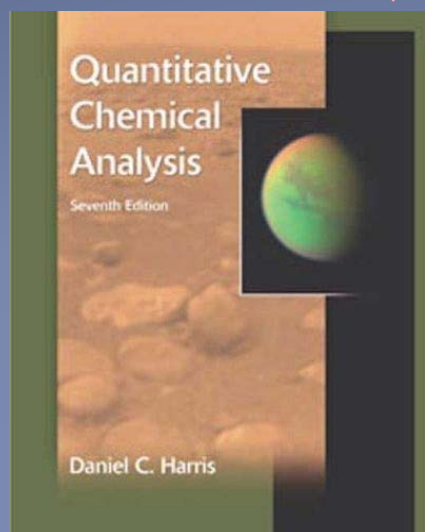
Methods of Conducting Geoecological Research

Dr. Marianna Kulkova

The Geology and Geoecology Department of Herzen
State Pedagogical University (Saint-Petersburg,
Russia)

The main topics of course

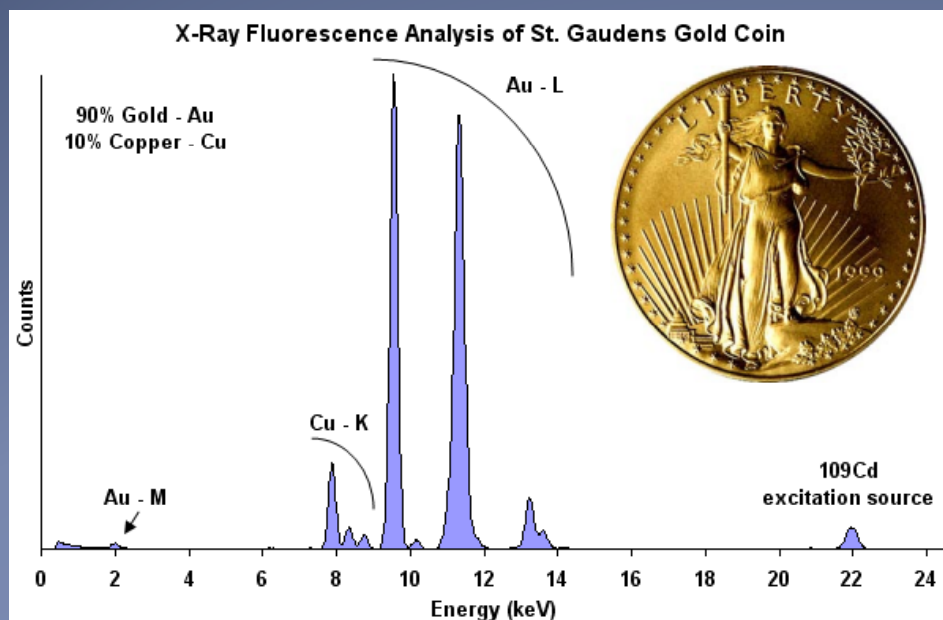
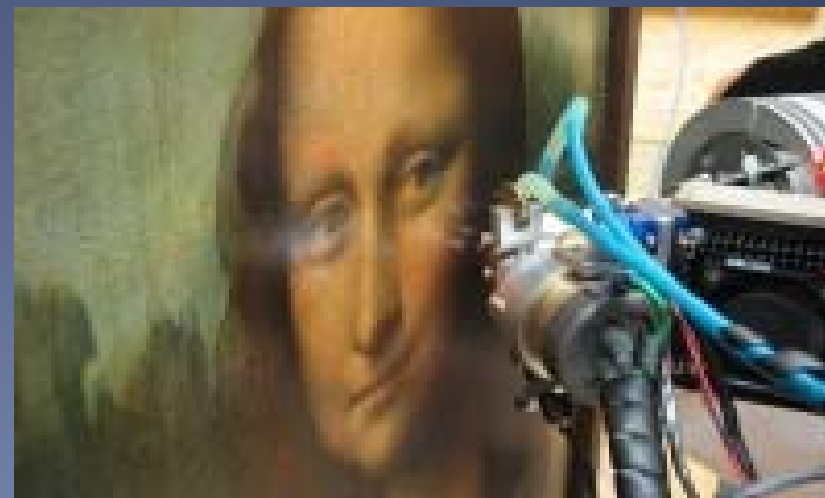
1. The methods of environmental control with the use of modern analytic technologies
 - Methods of chemical analysis
 - the quantitative chemical analysis of environmental objects



1. The methods of environmental control with the use of modern analytic technologies

- Methods of spectral analysis:

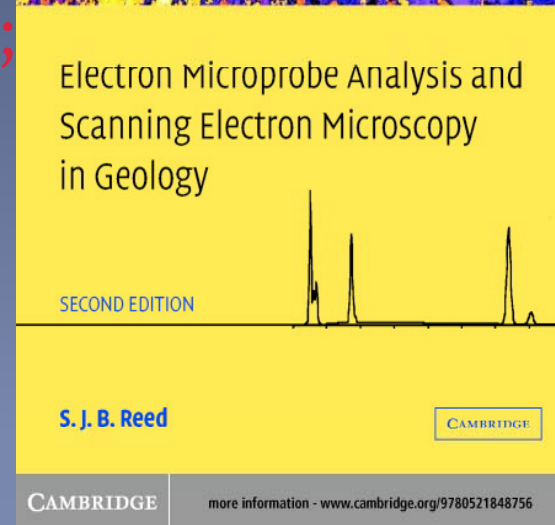
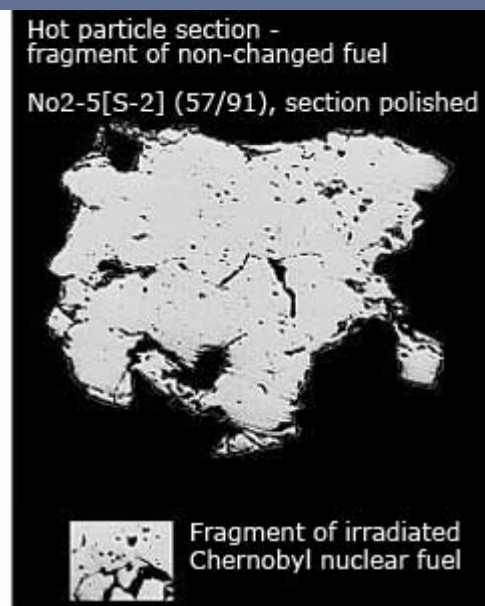
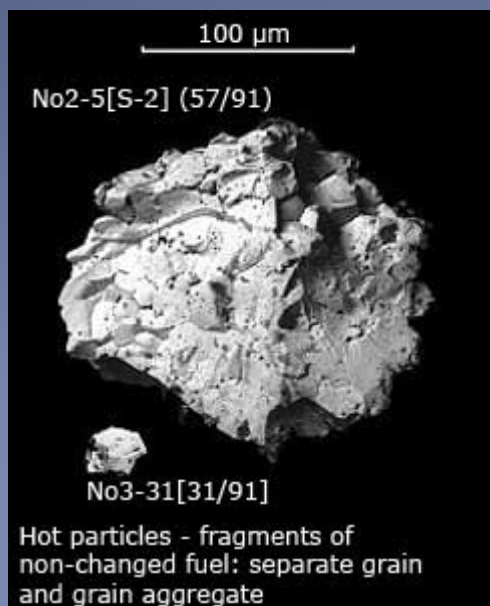
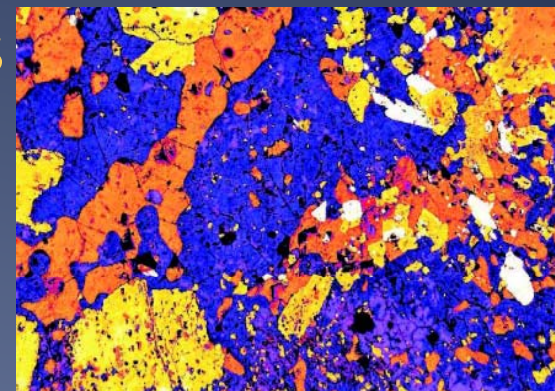
- XRF – X-Ray Fluorescence Spectrometry;



1. The methods of environmental control with the use of modern analytic technologies

- Methods of spectral analysis:

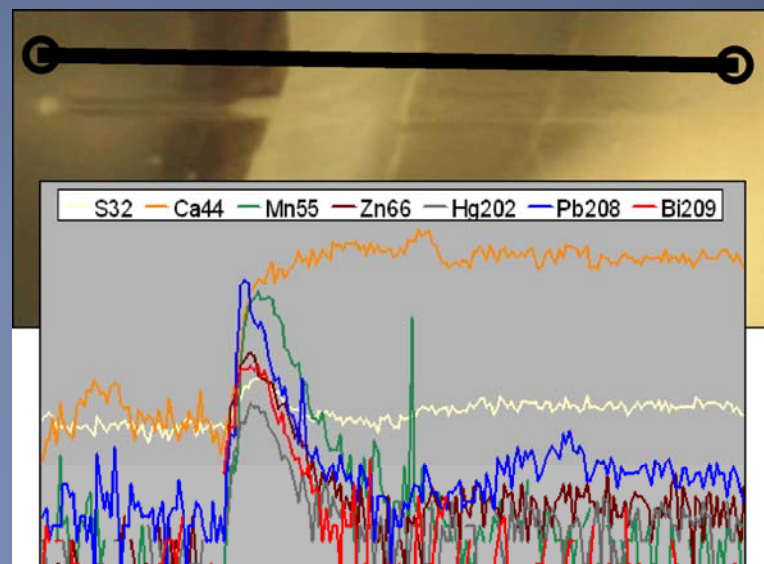
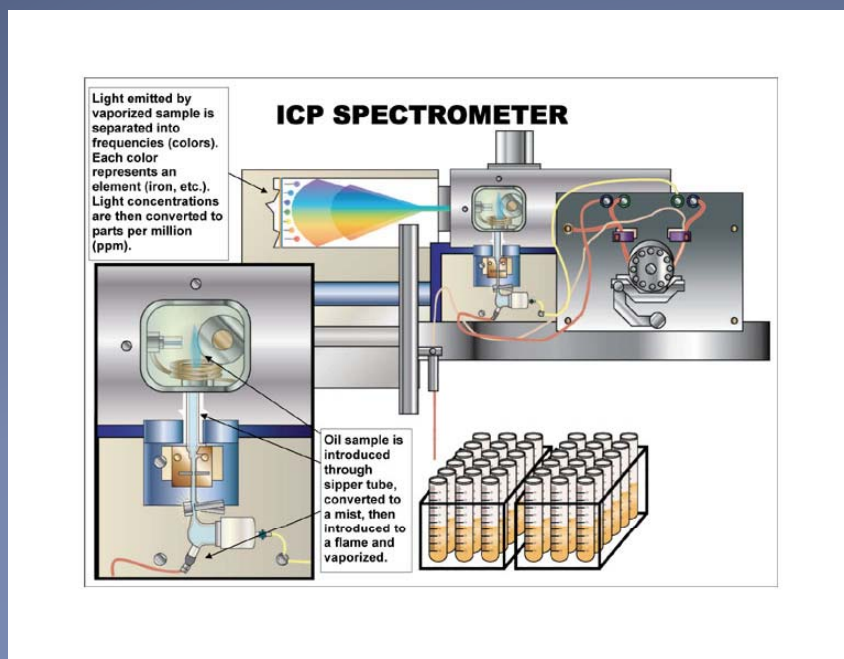
- **Electron Microprobe Analysis and Scanning Electron Microscopy;**



1. The methods of environmental control with the use of modern analytic technologies

- Methods of spectral analysis:

- ICP Analysis - Inductively coupled plasma mass spectrometry

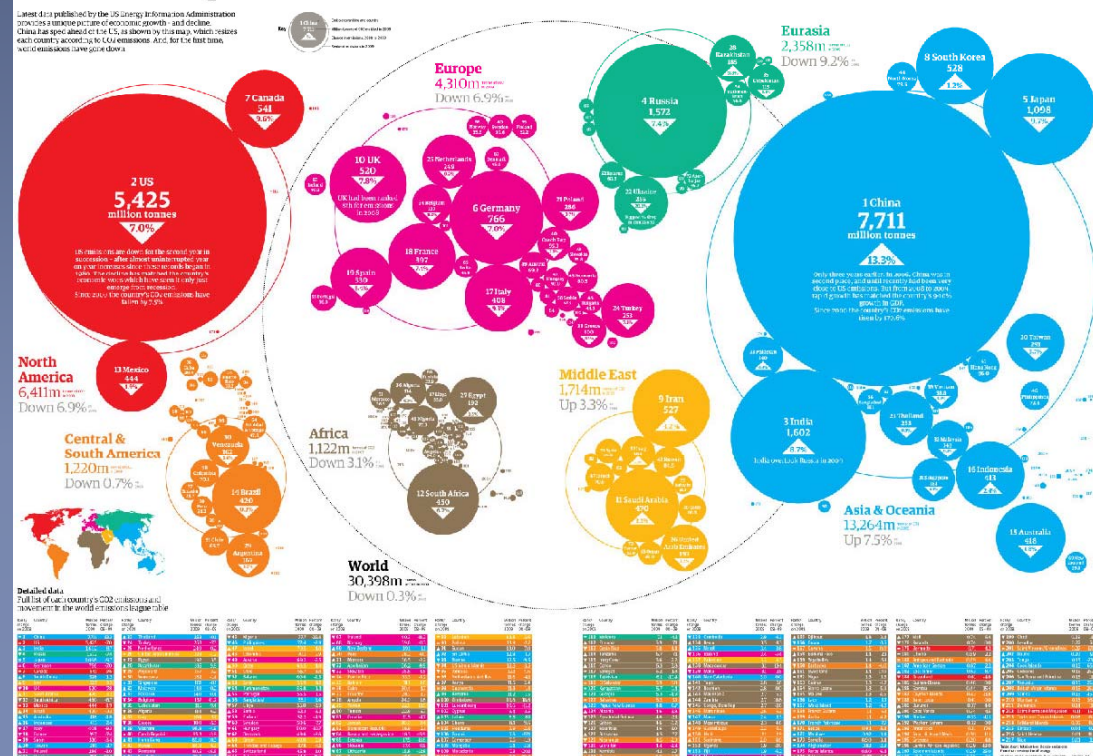


1. The methods of environmental control with the use of modern analytic technologies

- Methods of carbon and sulfur determination in the samples of environmental and petroleum products

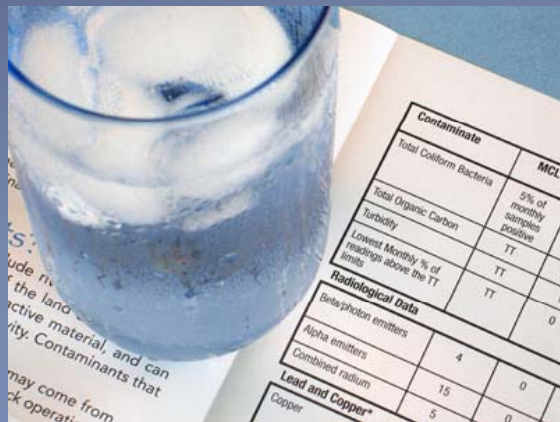


An atlas of pollution: the world in carbon dioxide emissions



1. The methods of environmental control with the use of modern analytic technologies

- Technical regulations during any ecological analyses



The main topics of course

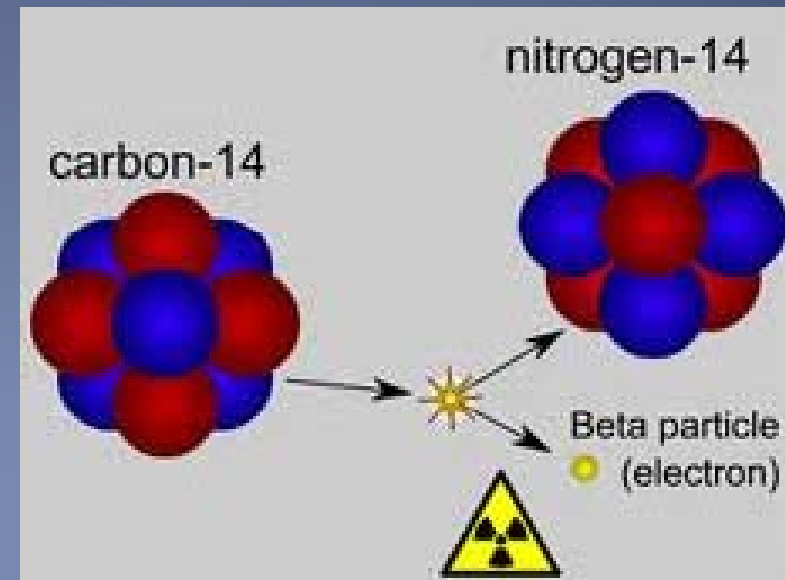
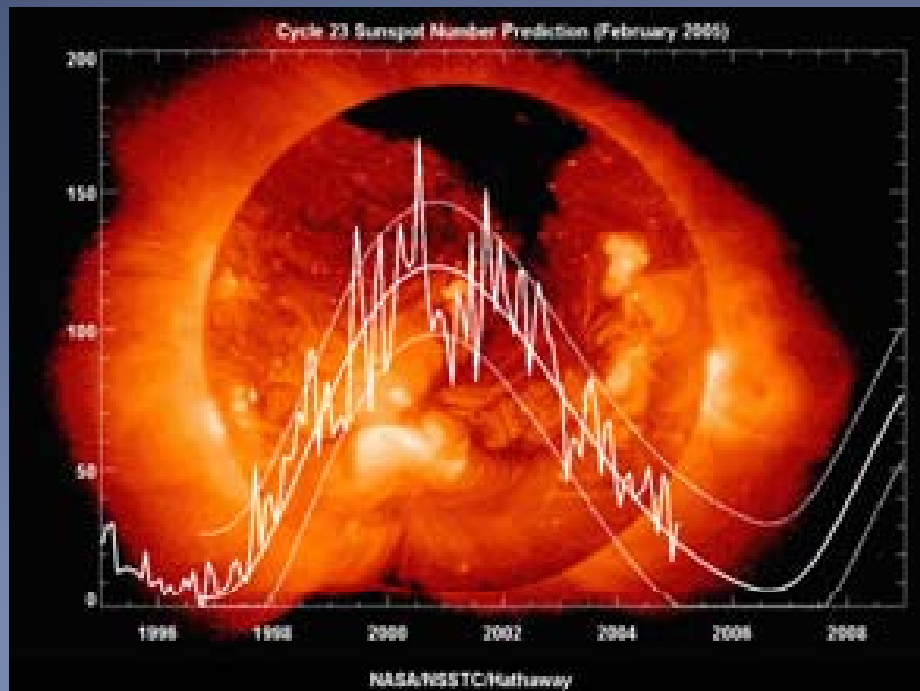
2. The liquid scintillation analysis for isotopic research

- The physical basis of liquid scintillation methods of spectroscopy
 - the radiocarbon analysis;
 - the tritium analysis;
 - the lead analysis.



2. The liquid scintillation analysis for isotopic research

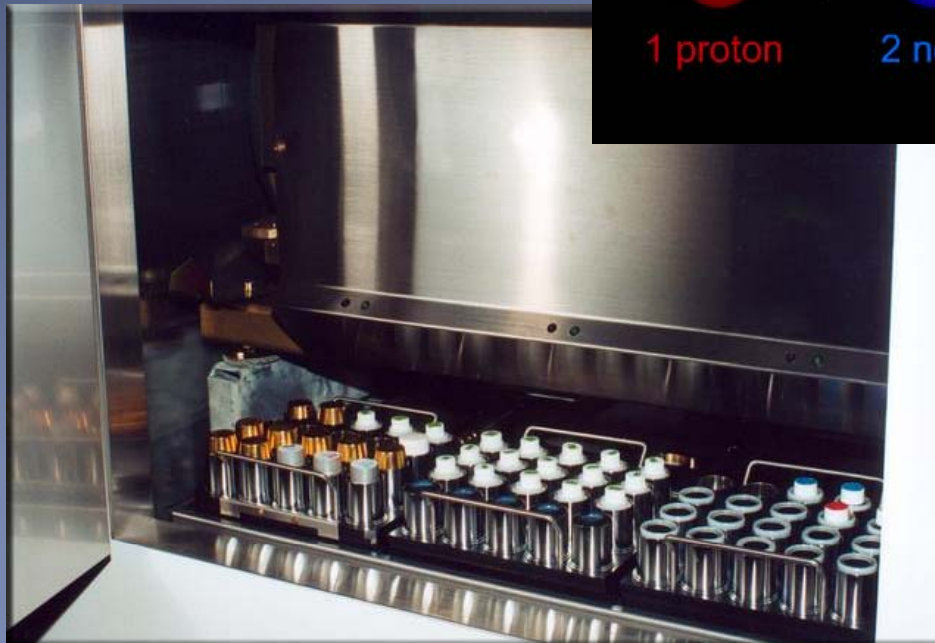
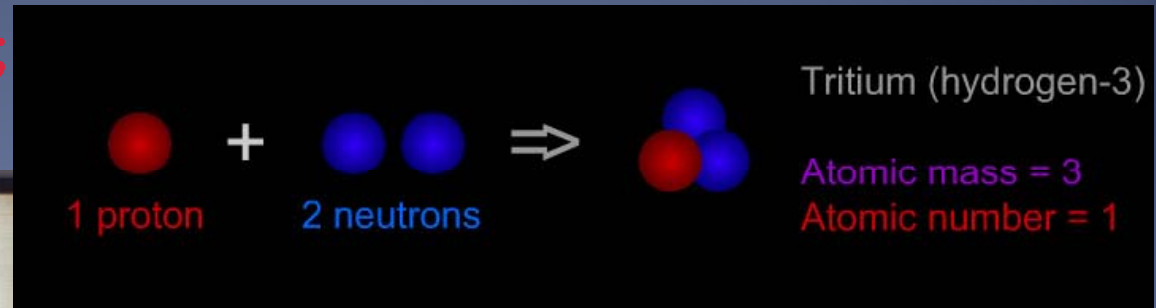
- The physical basis of liquid scintillation methods of spectroscopy
 - the radiocarbon analysis;



2. The liquid scintillation analysis for isotopic research

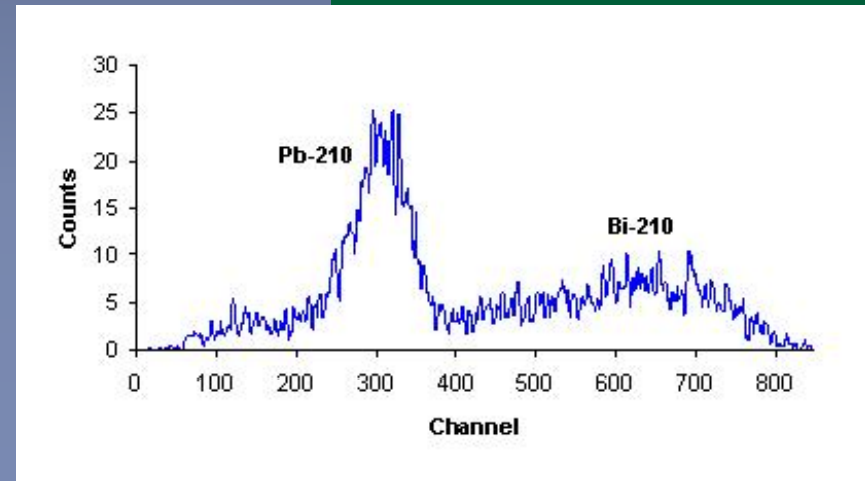
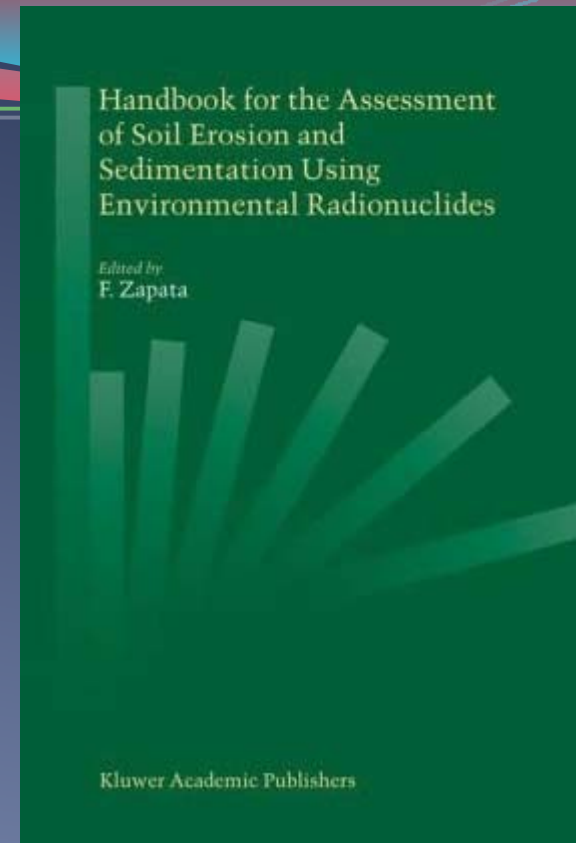
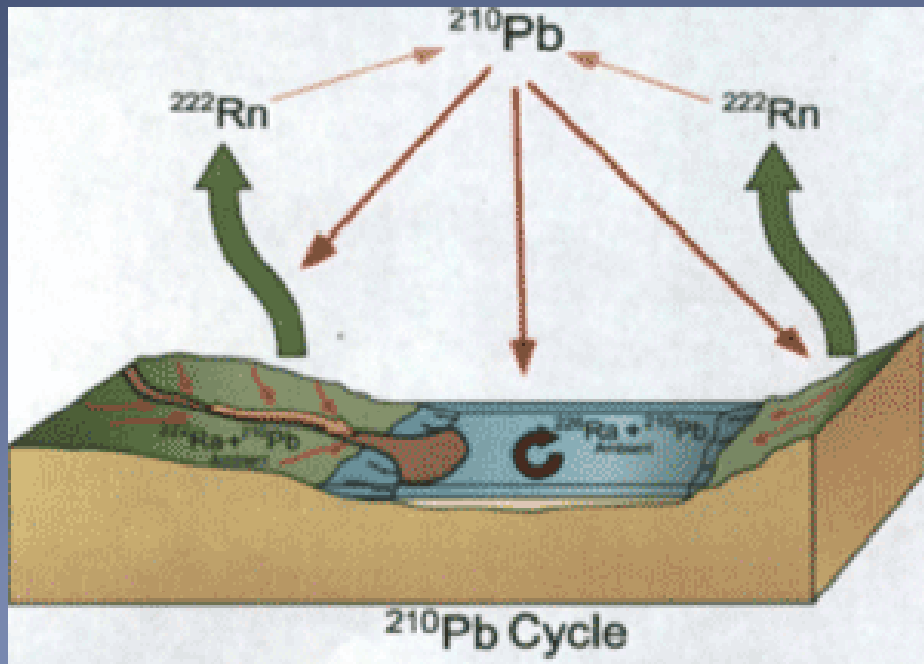
- The physical basis of liquid scintillation methods of spectroscopy

➤ the tritium analysis;



2. The liquid scintillation analysis for isotopic research

- The physical basis of liquid scintillation methods of spectroscopy
 - the lead analysis (^{210}Pb);



2. The liquid scintillation analysis for isotopic research

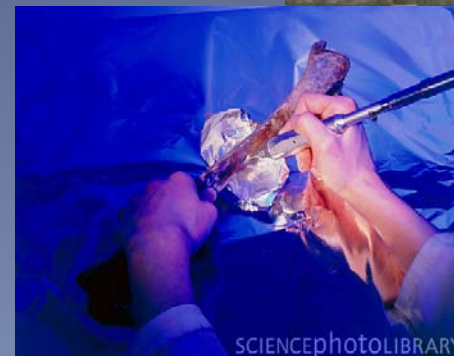
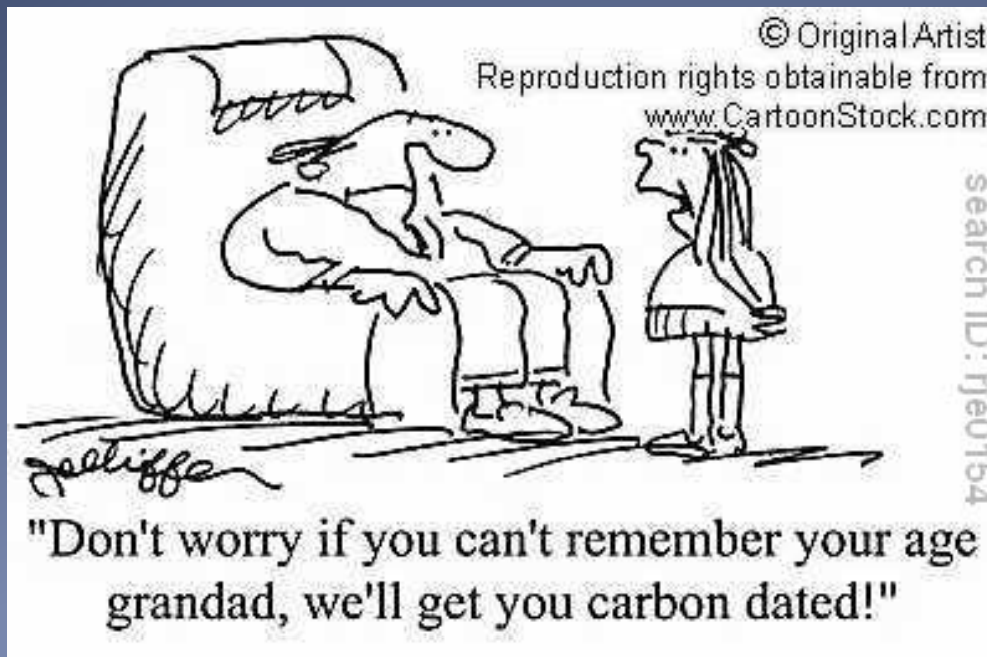
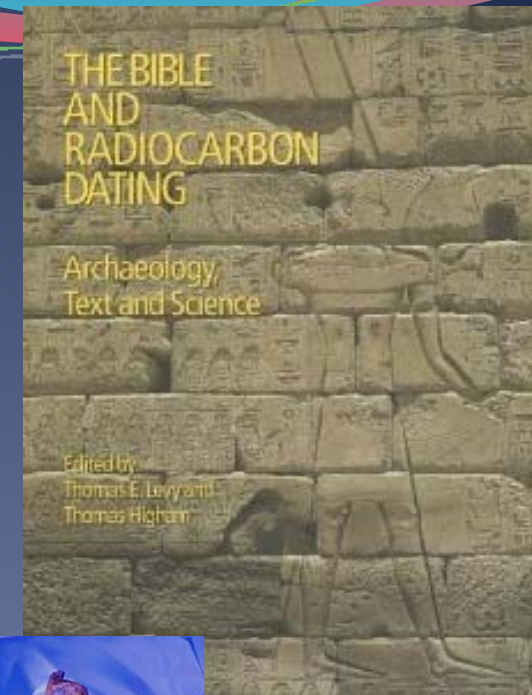
- The issue of radionuclide safety in the process of radiocarbon and tritium treatment
- The laboratory work on the base of lab equipment of Department



The main topics of course

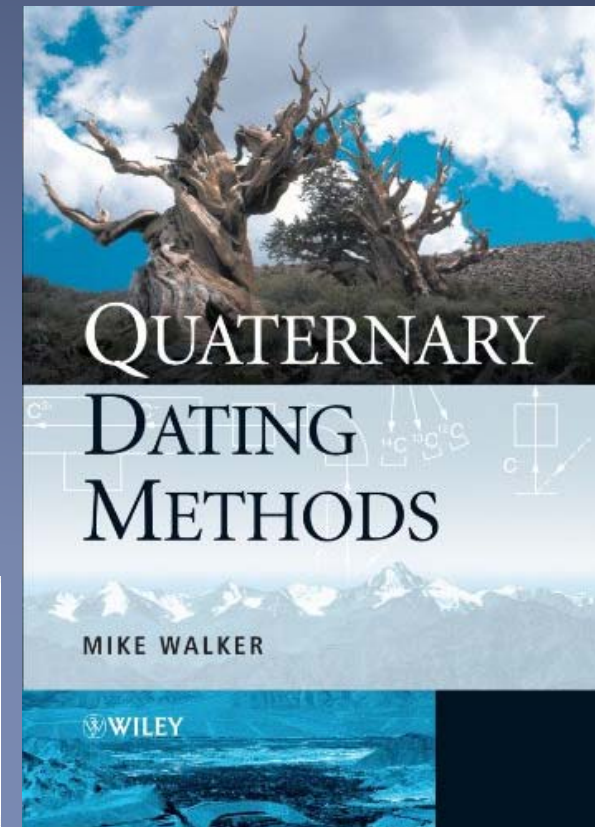
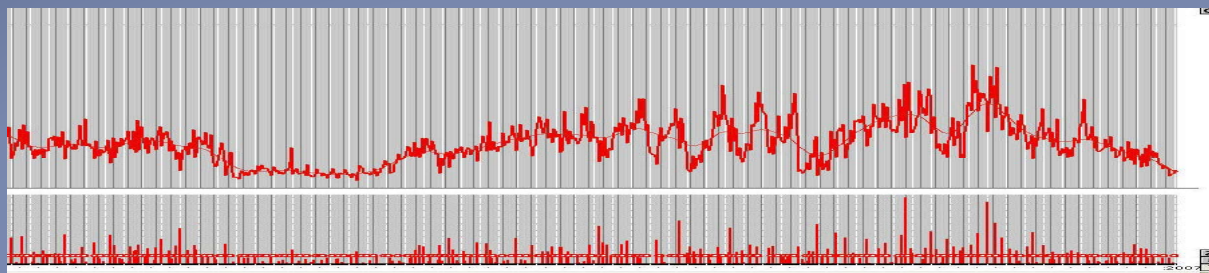
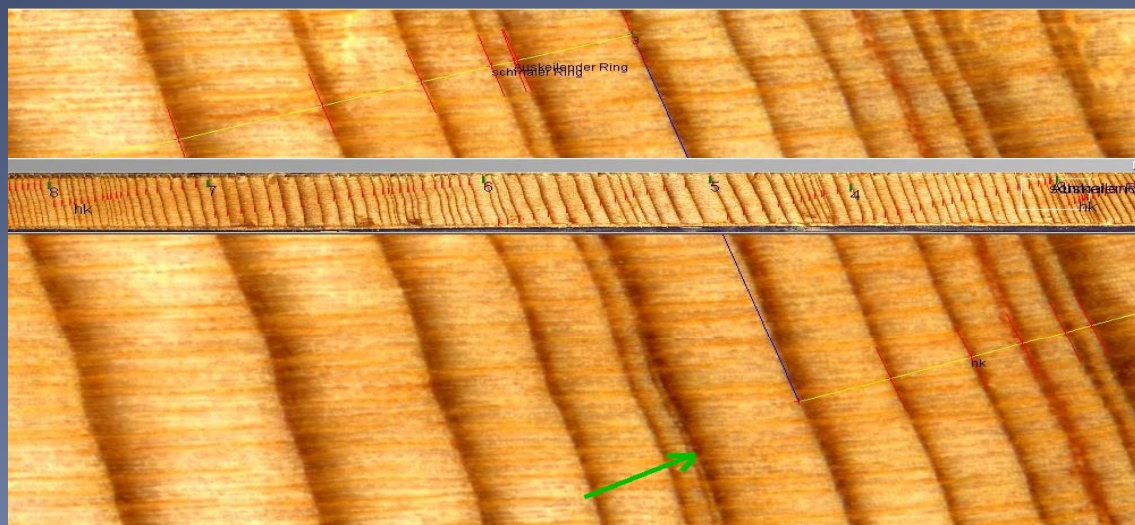
3. The analysis of the geochronological methods of investigation

- Radiocarbon method of dating



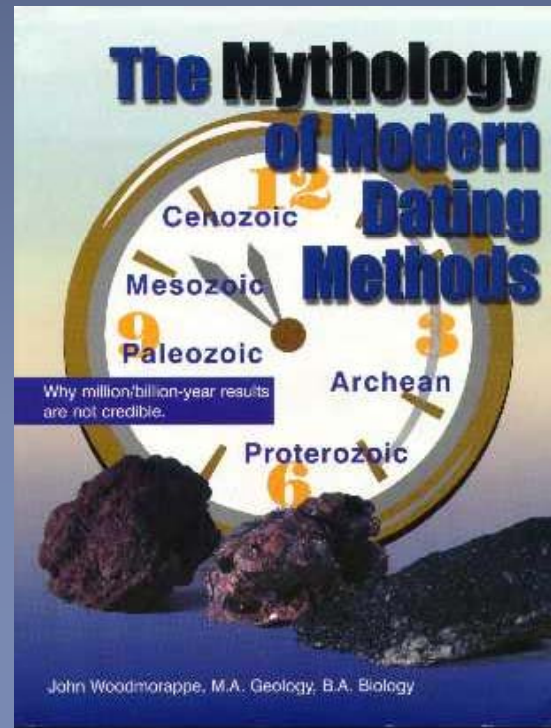
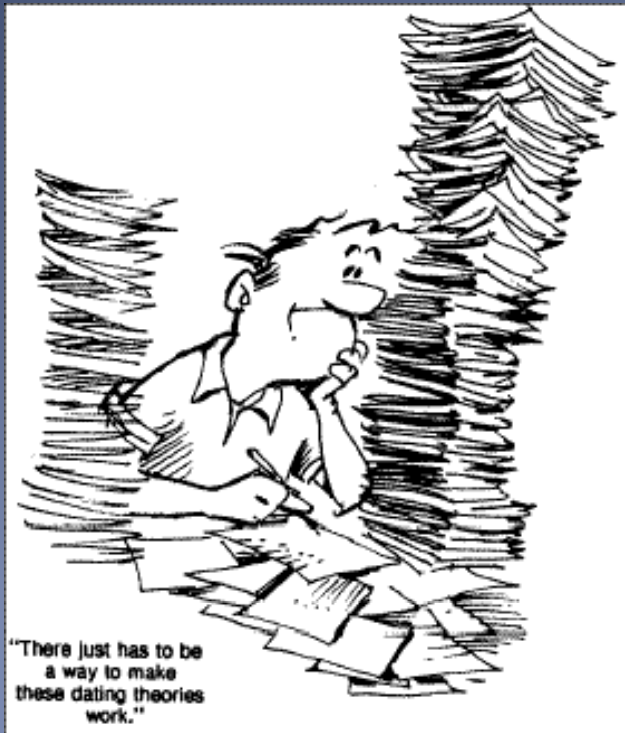
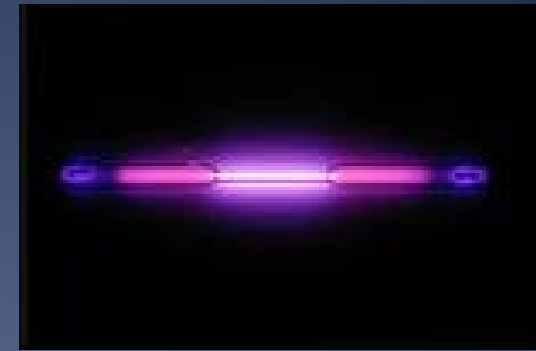
3. The analysis of the geochronological methods of investigation

- The dendrochronological or tree-ring method dating



3. The analysis of the geochronological methods of investigation

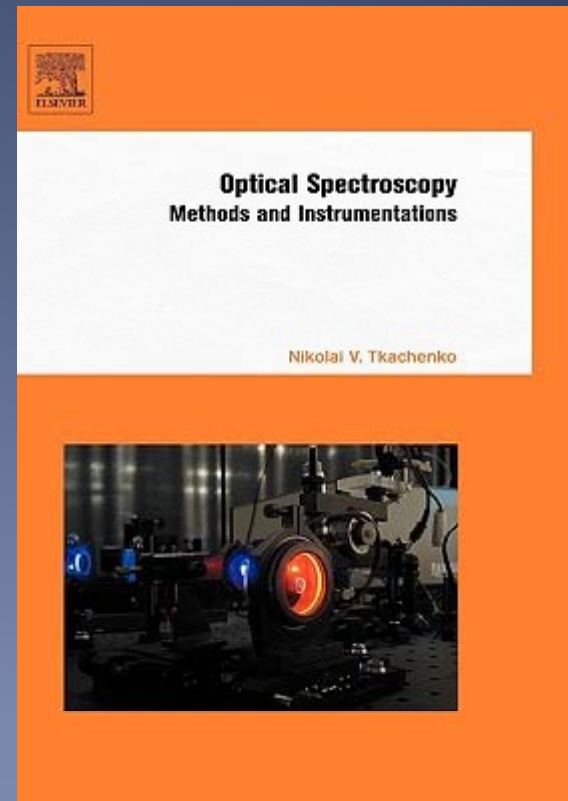
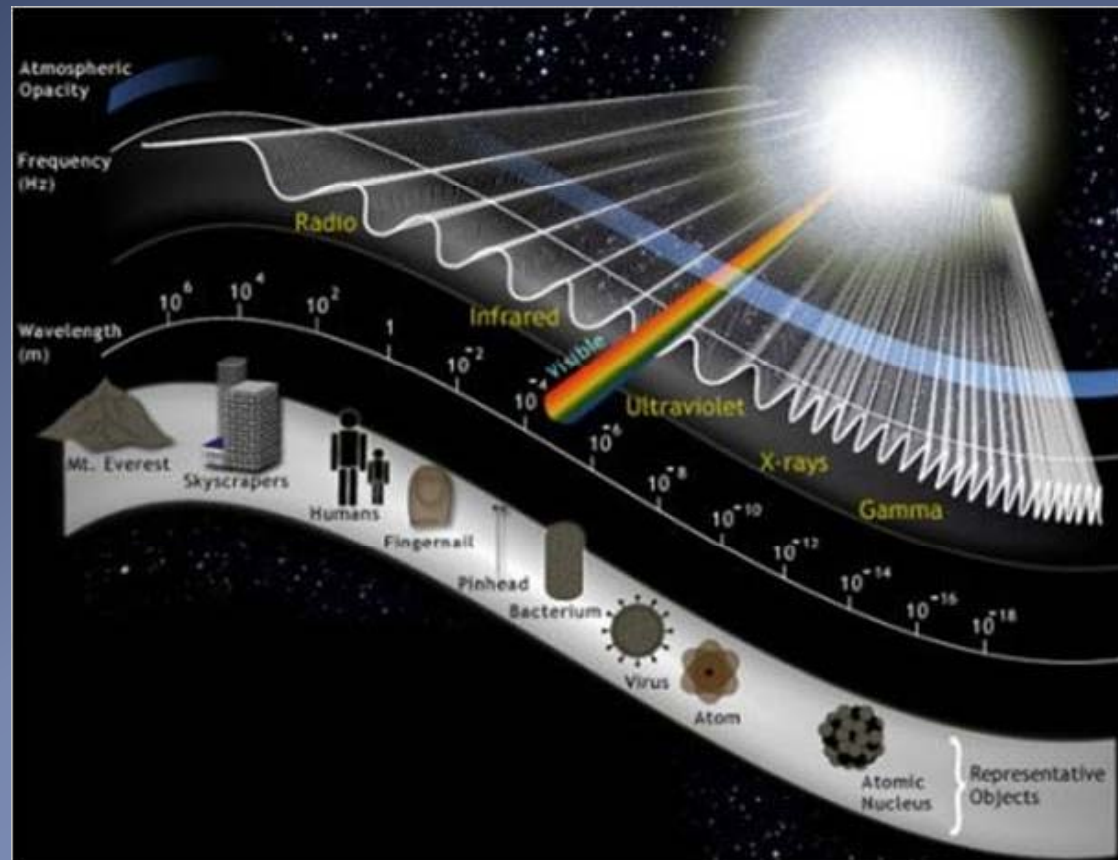
- The application of inert gases (He, Ar) for meteorite and gold dating
- K-Ar method dating



The main topics of course

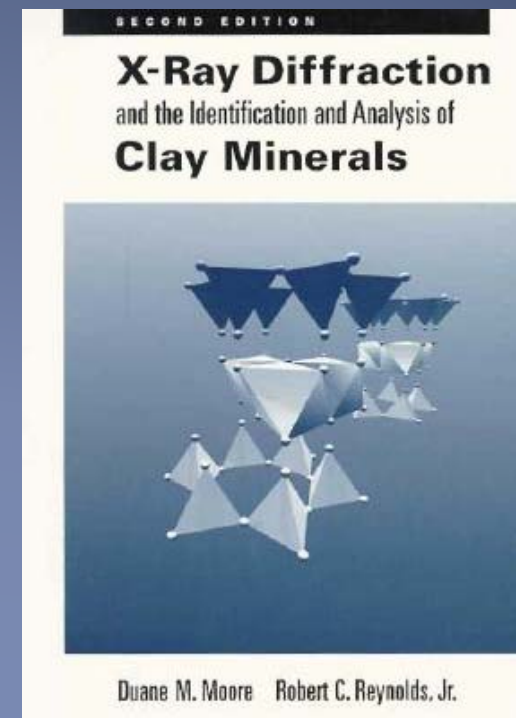
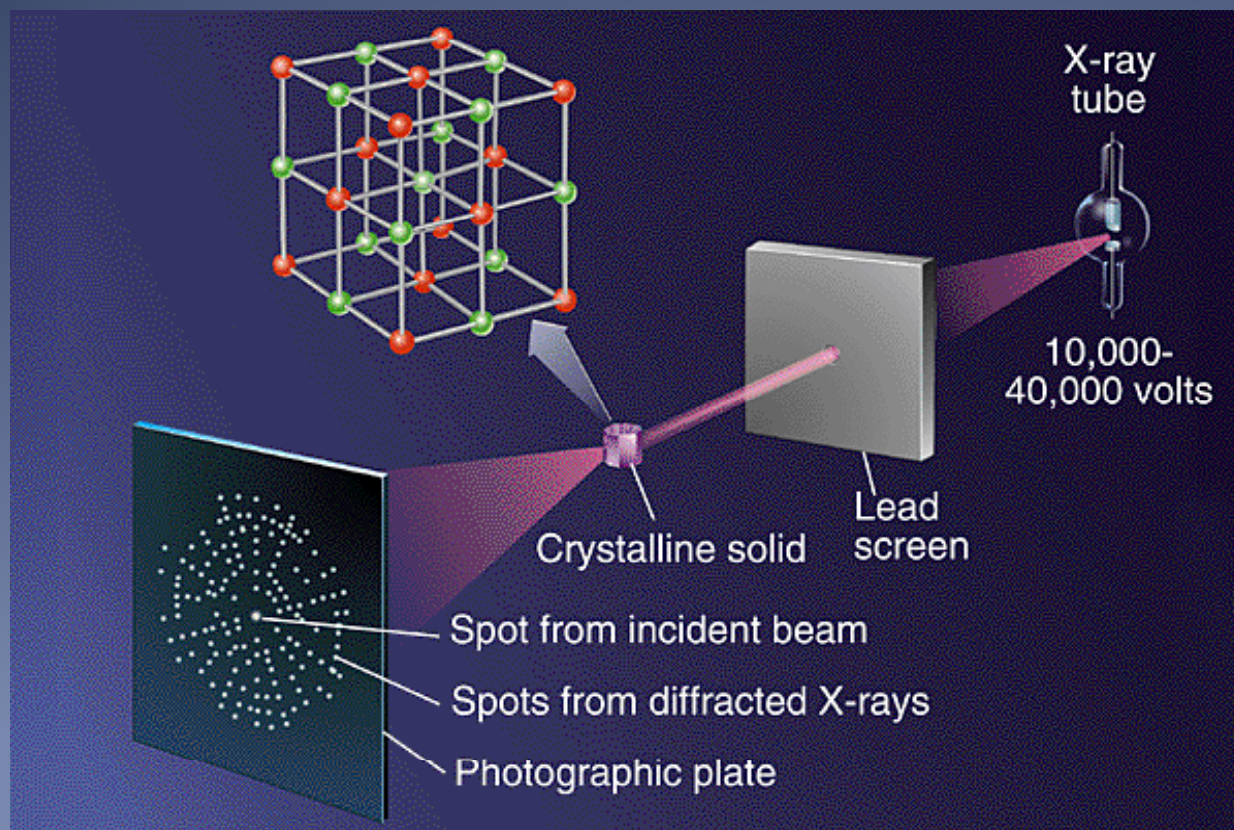
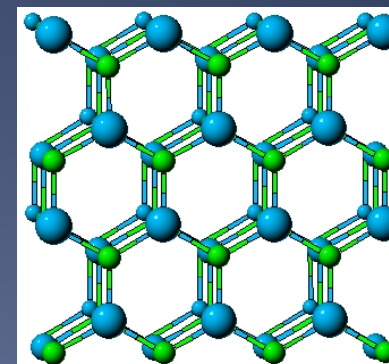
4. The mineralogical methods of investigation for solving geocological problems

- The methods of optical spectroscopy



4. The mineralogical methods of investigation for solving geocological problems

- X-Ray Diffraction analysis



Methods of Conducting Geoecological Research

- Methods of environmental control with using of modern analytic techniques;
- The liquid scintillation analysis for isotopic research;
- The geochronological methods of dating;
- The application of mineralogical methods of investigation for solving geoecological problems

Radioisotopic method

- ◆ Radiocarbon in environment and method of radiocarbon dating
- ◆ Tritium in environment
- ◆ ^{210}Pb dating of modern deposits

Thank you for your attention!

