



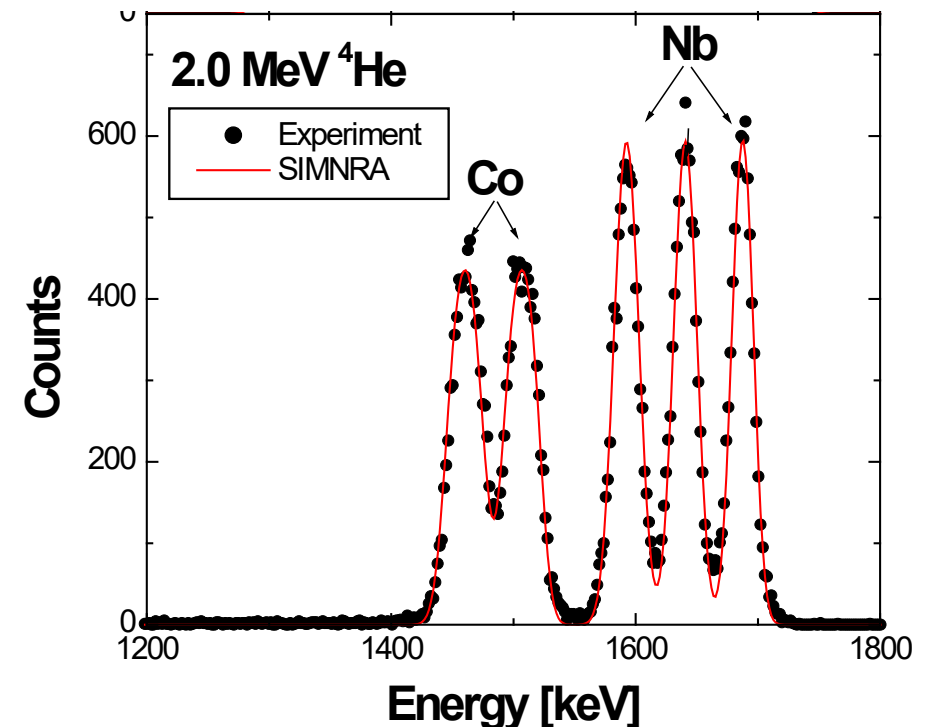
Introduction to Ion Beam Materials Analysis

Ion Beam Analysis (IBA) methods are for

- Quantitative analysis of materials
- Quantitative depth-profiling of elements / isotopes
- Very powerful (and often unique) tools
- (Almost) non-destructive

IBA is a family of methods:

- Rutherford Backscattering Spectrometry (RBS)
- Elastic Recoil Detection Analysis (ERDA)
- Nuclear Reaction Analysis (NRA)
- Particle-Induced γ -ray Emission (PIGE) and Particle-Induced X-ray Emission (PIXE)
- Channeling (RBS-C)



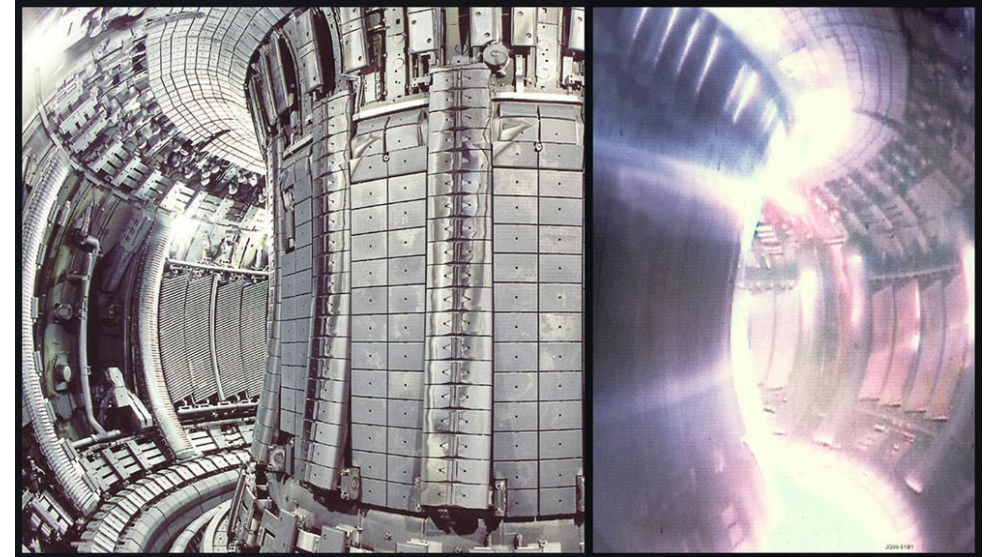
Example of an RBS spectrum and the sample structure derived from the spectrum



Introduction to Ion Beam Materials Analysis (2)

IBA methods are used in a variety of fields

- Semiconductors
- Materials science
- Energy applications / Nuclear fusion
- Art and cultural heritage
- Environmental science
- Geological sciences
- ...



<http://www.accelerators-for-society.org>



Introduction to Ion Beam Materials Analysis: Lecture Content

- Short history of Ion Beam Analysis
- Physics of Ion Beam Analysis
- Necessary input data
 - Stopping power data
 - Nuclear cross-section data
- Accelerator and detector technology
- Applications of Ion Beam Analysis