UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Radiation Matter Interaction

2122-1-F5302Q007

Aims

Aim of the course is to give the basis of the mechanisms of energy transfer from ionizing radiation to materials and to introduce some applications based on the interaction of ionizing radiation with materials

Contents

Fundamental nuclear physics. Radioactivity. Sources of ionizing radiation. Energy transfer from radiation to materials. Application of experimental techniques based on the interaction radiation-matter.

Detailed program

Sources of ionizing radiation. Energy transfer from radiation to materials. Defects induced by radiation. Experimental techniques for the study of the effects of the interaction radiation-matter on the physical properties of the materials: nuclear techniques, as Accelerator Mass Spectrometry (AMS), luminescence techniques and X-ray Fluorescence (XRF), with particular focus on archaeometric applications, like dating and ancient materials identification and measurements.

Prerequisites

Basic knowledge of physics of matter

Teaching form

Lessons and exercises. Visits to research laboratories.

Textbook and teaching resource

Ppt presentations and "ad hoc" textbook

Semester

Second semester (March-June)

Assessment method

Oral test.

The basis of the interaction of radiation with materials will be assessed, together with the knowledge of the techniques introduced during the lessons.

Office hours

On request contacting the teacher at: m.martini@unimib.it