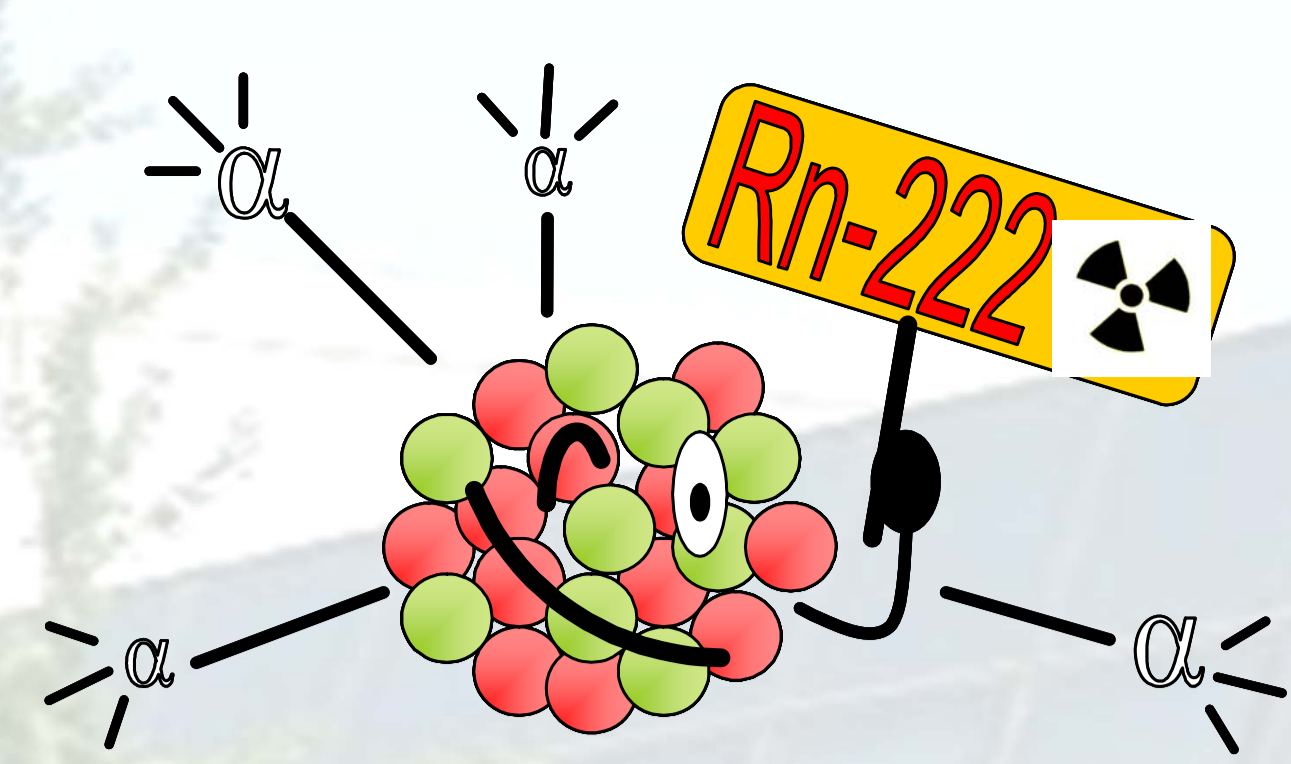




Laboratorio Acceleratori e Superconduttività Applicata - L.A.S.A.

RADIOLAB Project: a DIP ... INTO ENVIRONMENTAL RADIOACTIVITY



Radon indoor measurements a way to approach the students to scientific culture: the importance of the dissemination of the scientific culture among the new generations
F. Groppi, A. Bazzocchi, P. Maggioli, E. Sabbioni, S. Manenti

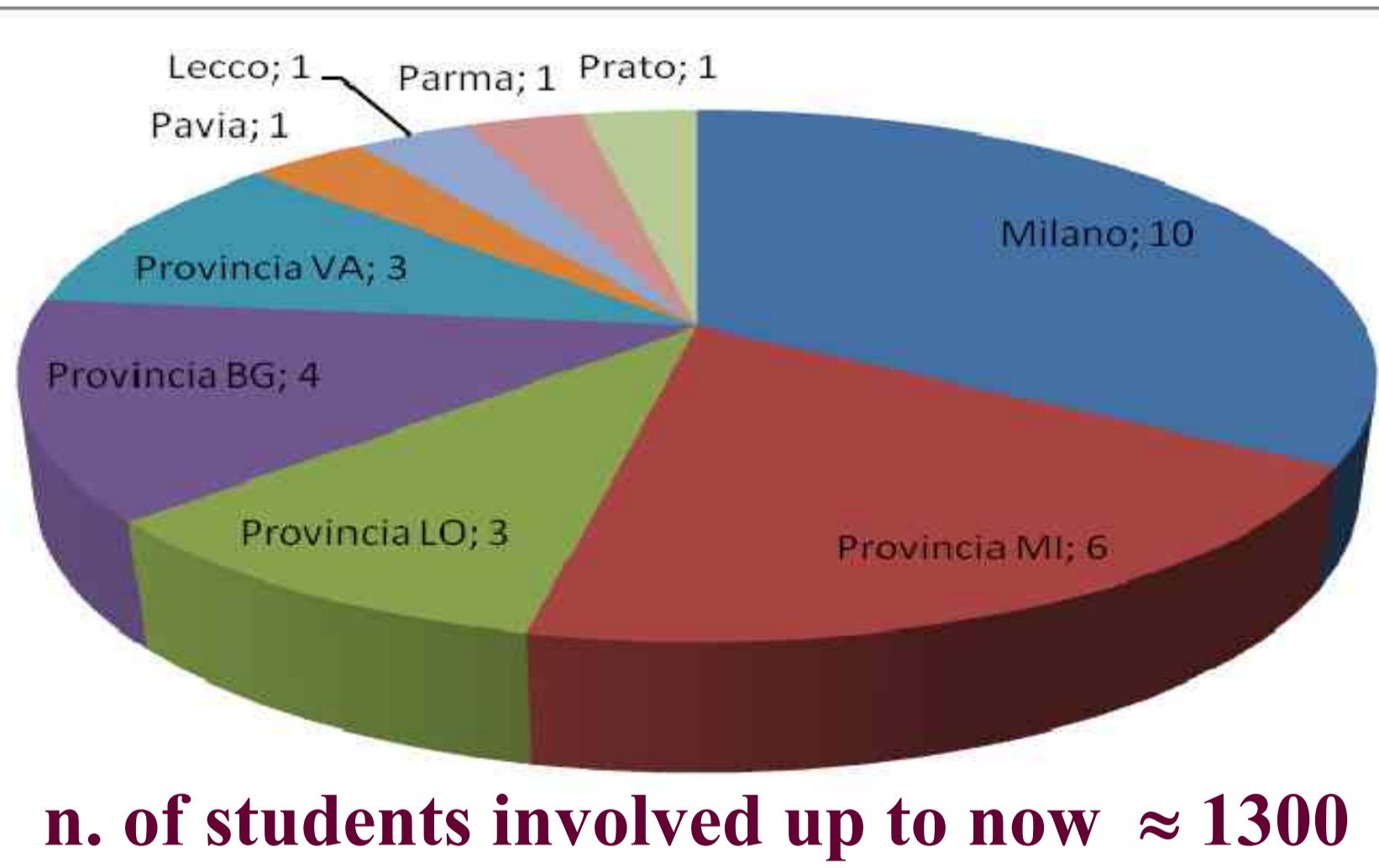
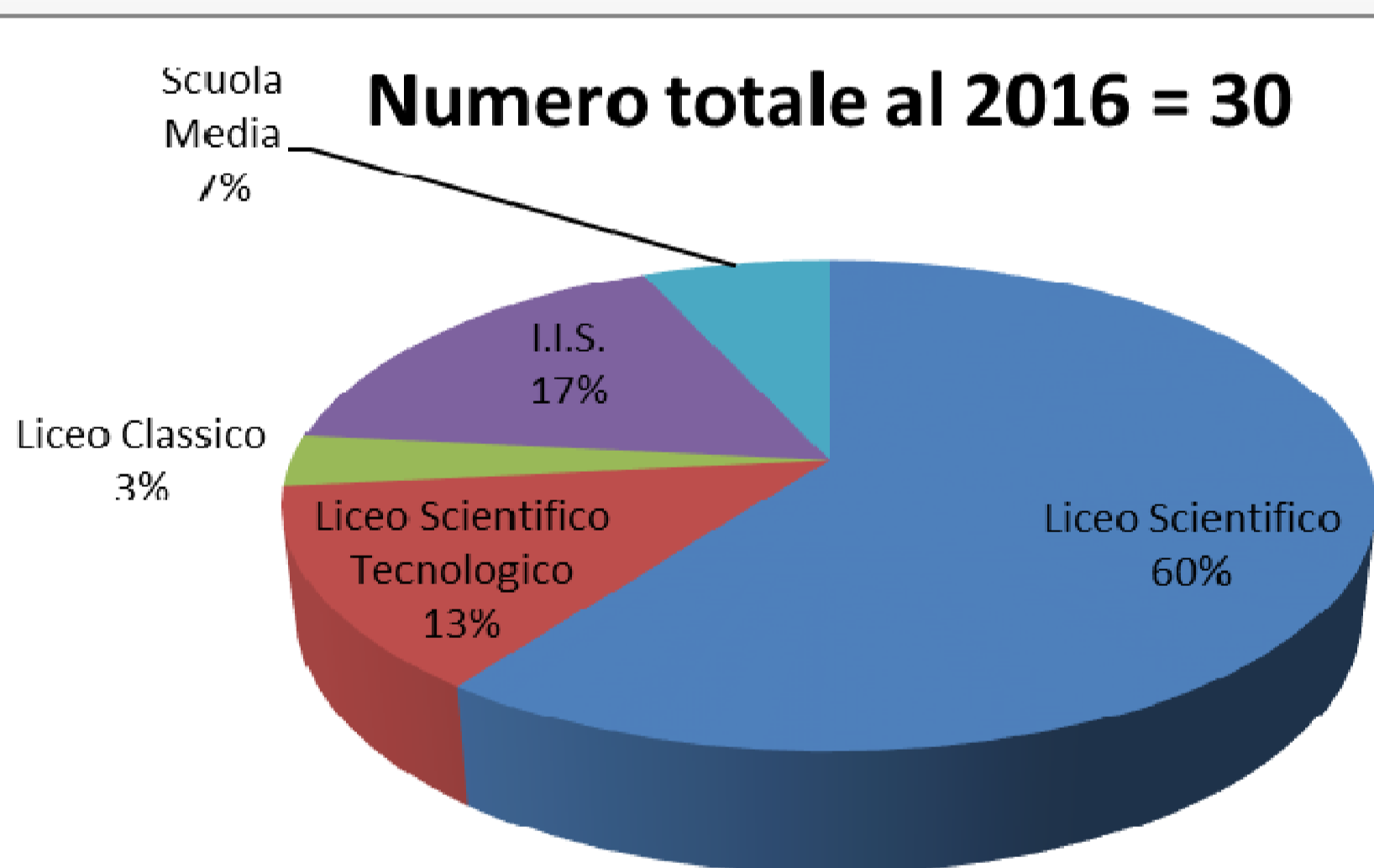
Project's aim

- the **subjective perception** of the risk very often doesn't correspond to the **objective and real risk** of an activity. In particular the radioactivity theme is misled because it is almost unknown; the public links this concept to nuclear arms and to its usage in uncorrected way to produce energy in the nuclear power plants, even if in the last 50 years NPP for civil uses has significantly fewer casualties than any other source of energy;
- nuclear power's association with nuclear weapons has contributed to its lack of acceptance in particular in Italy, where the "nuclear issue" has been for a long time a taboo.

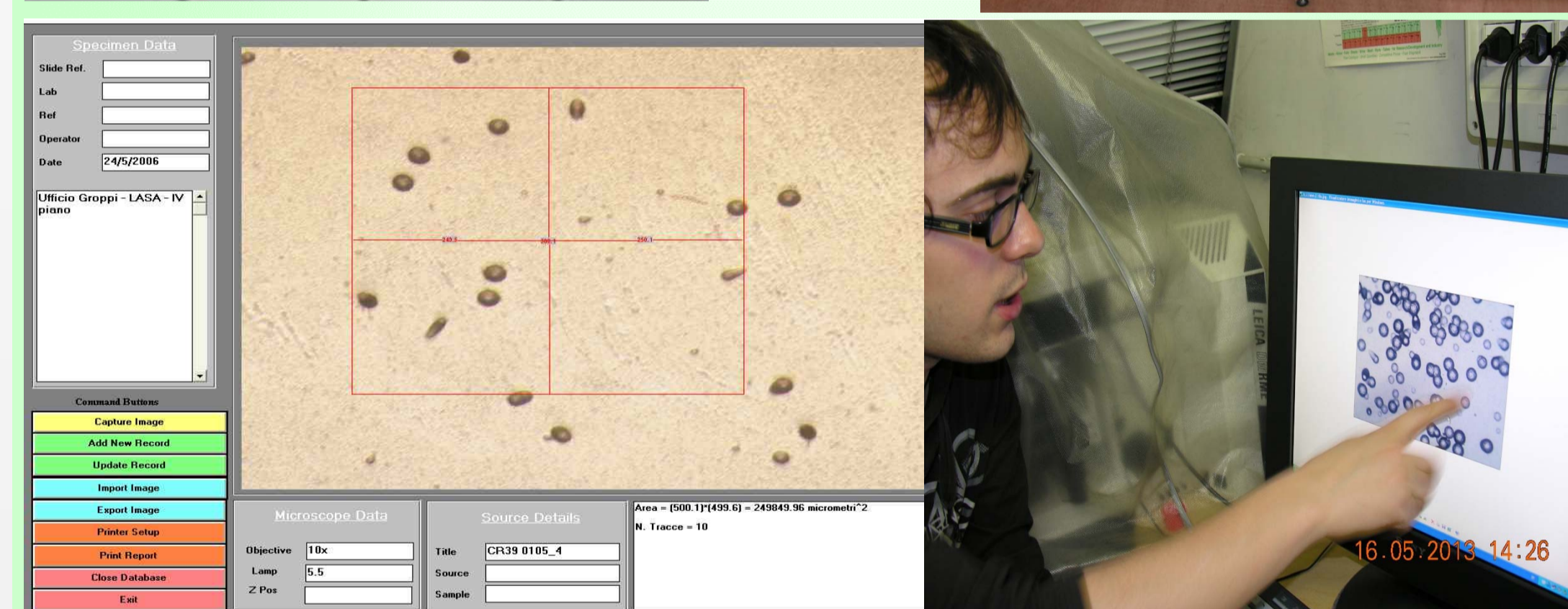
Core idea of the project

- High Schools of Italian Regions participate to the project.
- The students are furnishing of a **laboratory at their school** in order to measure with rather simple devices, the **natural component of the radioactivity that surround us** and in which **we are immersed**;
- in this contest measurement of the **Rn-222 concentration** is particularly suited and up-to-date;
- there are **different types of radiations**, and ionizing radiations are just a particular type;
- ionizing radiations can be measured**;
- it is fun to discover and detect ionizing radiation.

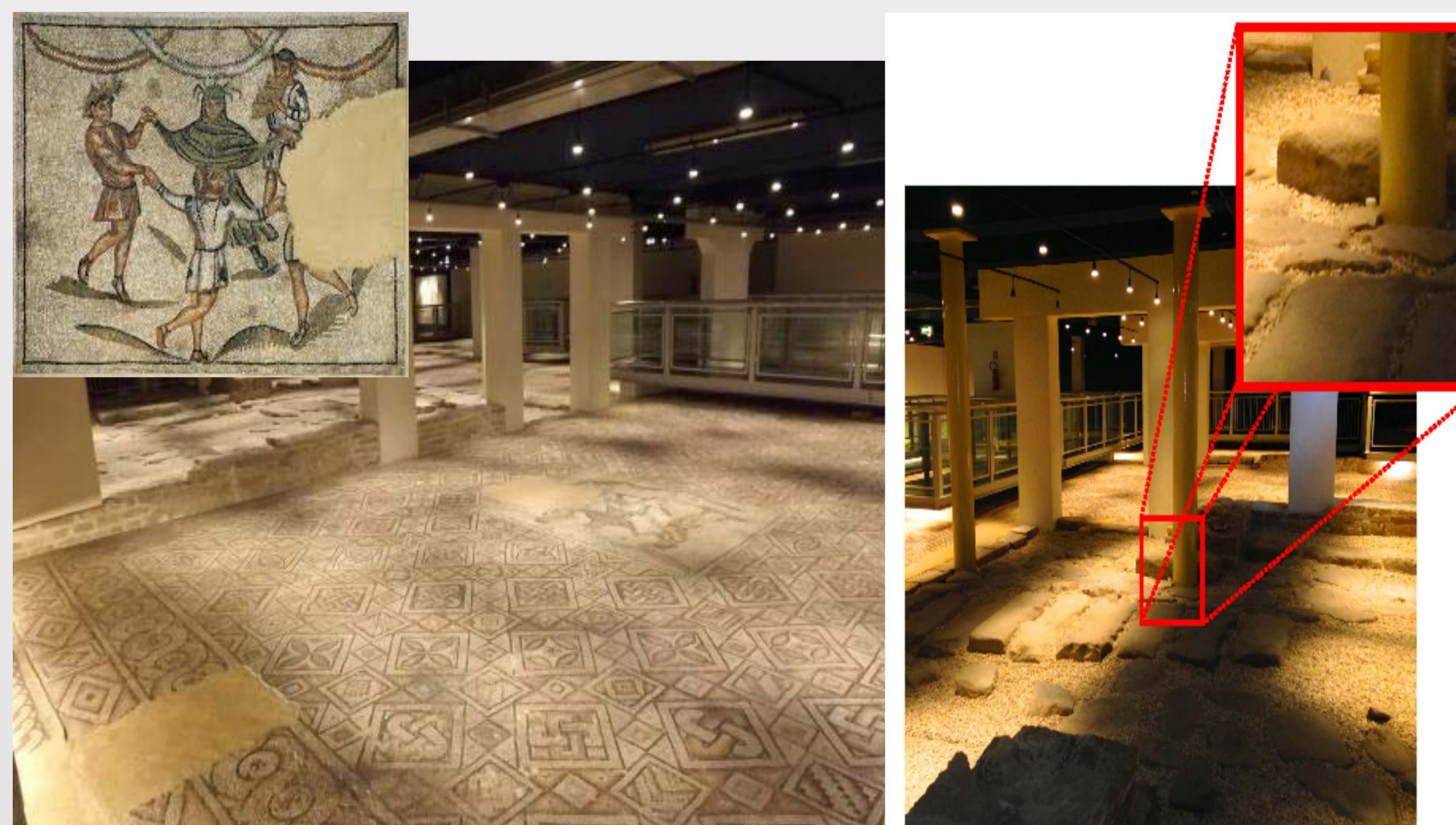
Schools involved in the Project mainly Lombardia Region



Measurements in caves



RAVENNA	Domus of Stone Carpets	Home	Cellar
Time of exposure [d]		69	70
Rn concentration [Bq m ⁻³]	177 ± 14	56 ± 17	73 ± 10



Kit distributed to the Schools

- passive dosimeters CR39;
- small plastic boxes to be used as expansion chambers;
- a fryer to be used as thermostatic bain to develop the dosimeters;
- a microscope with webcam interfaced to personal computer.

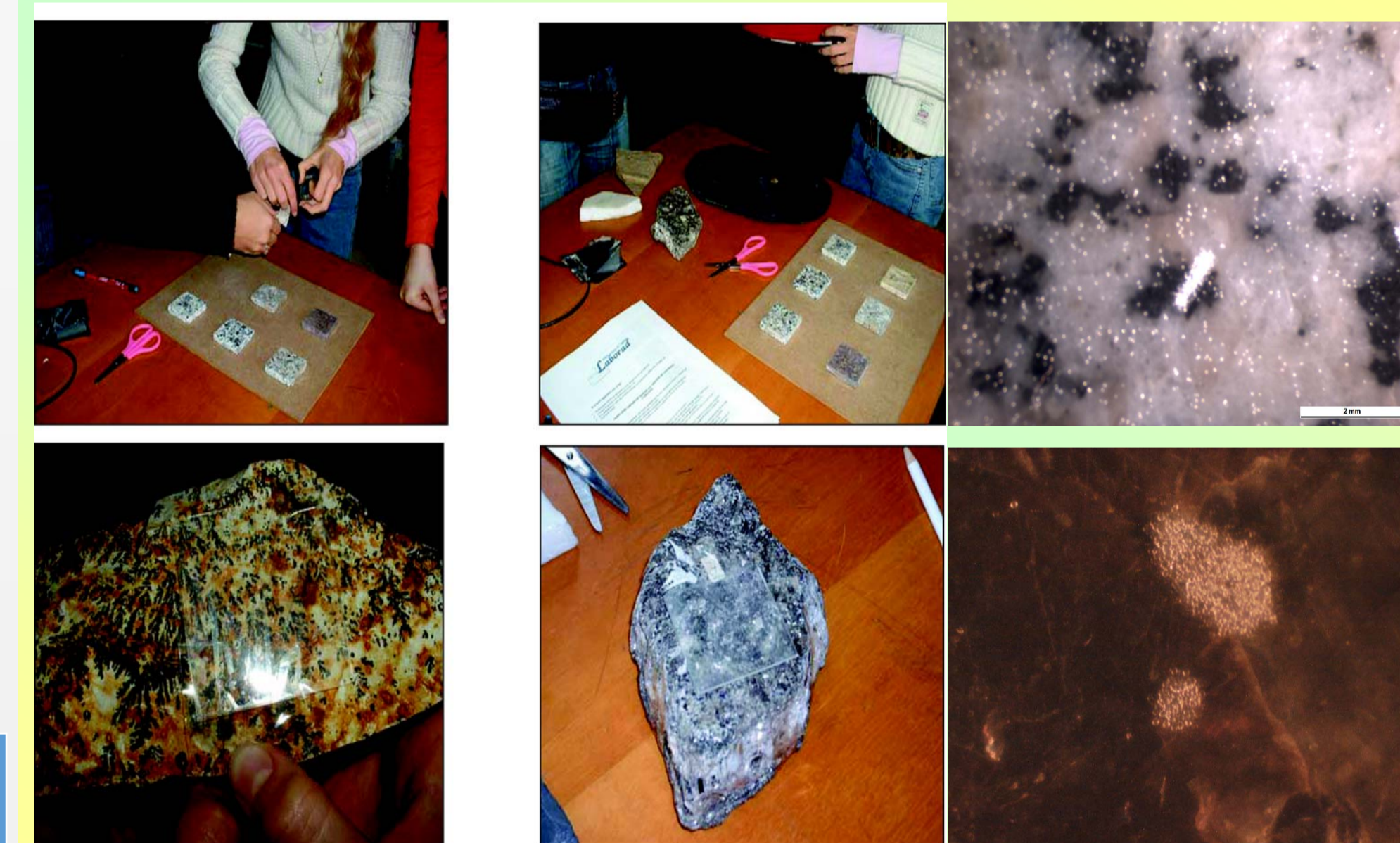
With this instrumentation Rn concentration is determined by the alpha tracks measurements for an integrate period of 6 or 12 months.

The measurements are done prevalently in the schools and in the houses of the students, but also in caves, monuments, bunkers, underground places ...

Points of strength of the project

- the experimental approach;
- no episodically work;
- the possibility to develop the study of the environment;
- the high interdisciplinary;
- the development of the communication ability.

Measurements of granite rocks by autoradiography technique



Conclusions

- The measurement of natural radioactivity is the best way for the students to approach the theme related to the nuclear on a more rationale basis.
- The effective **experimental activity** is the best way to provide for an adequate scientific background.
- The **teachers carry out a training or refresher course** on these subjects.
- Moreover recognizing the **importance of the communication**, many **seminars and workshops** are periodically organized specifically for the students or devoted to the population too to discuss about the different possible energy production sources, compared the risk and benefit, in order to try to give unambiguous and comprehensive answers to a wide range of questions related to these themes.



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