

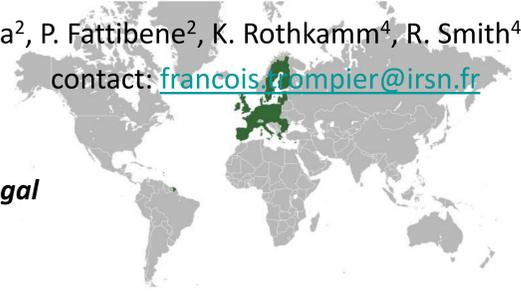


# Overview of physical dosimetry methods for triage application integrated in the new European network RENEB

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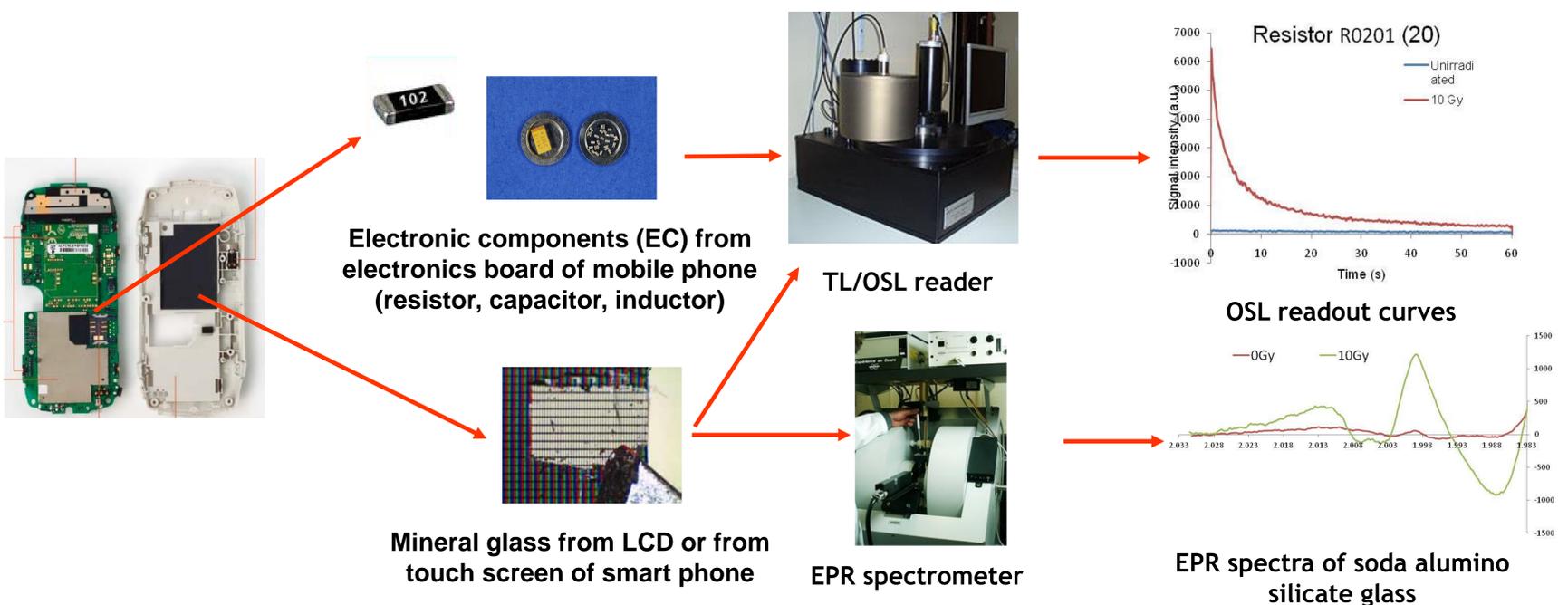
## Introduction

Over the last years, the risk of a large scale radiological event has markedly increased. This includes possible accidents in nuclear facilities but also potential terrorist attacks against key facilities or civil targets. In both contexts, retrospective dosimetry is an essential tool to estimate an actual absorbed dose. Thus, individuals, who need extensive medical care due to severe irradiation can be identified among people who have not received high doses of ionizing radiation. In such large-scale radiological scenarios the capacity of single or few retrospective dosimetry laboratories will be overcharged. As a consequence networking has been recognized as a sensible and important element of emergency response strategy. Now a European Network of retrospective dosimetry is on the way to being realized. In addition of biodosimetry techniques, retrospective dosimetry techniques such as EPR spectroscopy or luminescence has been considered. These techniques are applied on materials found in mobile phones (LCD glass, touch screen, electronic components) providing possibility of a dose estimation for a large part of the population.

## RENEB objectives

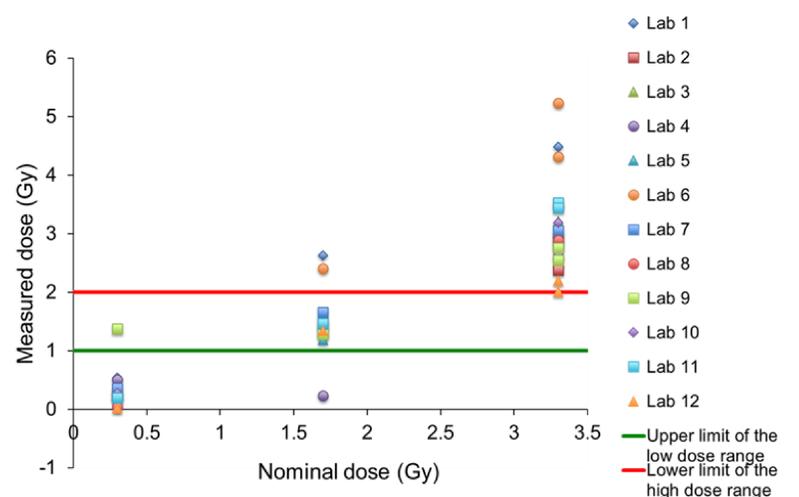
RENEB aims to establish a sustainable European network in retrospective dosimetry. A total of 23 organisations from 16 European countries will cooperate to guarantee the highest efficiency in the processing and scoring of biological samples and measurements of mobile phone components for fast, reliable results implemented in the EU emergency management. RENEB involves for the moment 3 laboratories for EPR dosimetry and 5 for TL/OSL dosimetry. At the end of the project, more laboratories would be recruited to constitute a network with reinforced measurements capacity. Other types of materials or techniques could also be considered within the RENEB project.

## Materials and methods



## Results and conclusions

European exercises for EPR and OSL techniques have been recently organized under the umbrella of the EC projects Multibiodose (Multi-disciplinary biodosimetric tools to manage high scale casualties) and RENEB, utilising the technical approaches developed in the Multibiodose project. These exercises have involved most of the European laboratories of retrospective dosimetry (12 labs for EPR and 12 for OSL), which are already constituted as a research network through the Working Group 10 'Retrospective Dosimetry' of the European Radiation Dosimetry Group (EURADOS). **The results have demonstrated the possibility to correctly discriminate the different dose categories of triage (0-1 Gy, 1-2 Gy and above 2 Gy), as well as the possibility to use competences and capacities of these European laboratories in an emergency (Fattibene et al., Rad Env Biophys 2014 and Bassinet et al., Rad Meas 2014).** Physical dosimetry tools (EPR/OSL/TL) can be implemented in the triage process beside the classical biodosimetry tools. The RENEB project aims to integrate these existing capacities into the future network that will be constituted at the end of the project.



Overview of the results of the OSL intercomparison on resistors from mobile phone