Project reference : **PTDC/FIS/121383/2010**
Project title: **Luminescence Analysis of Radiation Effects - LARE**

Experimental Activities	Year 1: 2012												Year 2: 2013												Year 3: 2014											
Location / Responsible Participant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
	Phase 1									Phase 2									Phase 3									Phase 4								
Irradiation and detection ("irradiation" includes ionising, thermal and optical exposure)																																				
GeoLuC (ITN)	Total sample TL and total sample and spot OSL analyses of different materials following different types of irradiation, with high sensitivity detection in different emission bands									TL/OSL/PL/CL/RL spectral analyses including stimulation and detection spectrometry and sub-room temperature measurements			Full suite of analyses by all participating groups, on new system using different sources																							
LFI (ITN)	Imaging IL and RL analyses of different materials during and following different types of irradiation (ion implantation, van-der graff, etc)									Imaging spectrometric IL/RL/CL/PL/Raman measurements																										
TRPP (ITN) & access to UTR (ITN)	High energy e beam/x-ray irradiations and high dose 60Co gamma irradiations																																			
	Imaging flourescence analyses following different doses from different types of radiation									Imaging CL/PL/OSL analyses																										
DepGeo (UA) & access to CEIM (UA) and (UPorto) through GEOBIOTEC	SEM EDAX, EDS & XRD (also PL and Raman spectroscopy, CL Porto & expected upgrade Aveiro), of different materials following different types of irradiation (+ imaging spectrometric CL analyses through national microscpoy network)																																			
CUDaM (UNIMIB)	total sample TL and OSL high sensitivity spectrometric analyses of different materials following different types of irradiation (and RL during X- irradiation?) using UNIMIB - built microplate system,																																			
SUERC	Area scanning and pulsed time-resolved OSL following different types of irradiation using SUERC - built systems																																			
Equipment/methodological development																																				
GeoLuC (ITN)	Low temperature gas flow to Riso reader									Test spectrometric add-ons to existing equipment for TL/OSL/PL/CL/RL spectrometry																										
LFI (ITN)										test add-ons to existing equipment for Raman/PL/CL/RL measurements																										
IN (ITN)	Design and manufacture of vacuum chamber and control system with electrically isolated heater stage capable of functioning as a cathode and delivering linear heating from LN2 to 1000K, and of being mounted on avaliable beamlines									Further development of control system focussed on the coordination of components, for (fast) pulsed spectroscopy and the programming of sequences of operations.			Integrate components tested on existing equipment with new chamber and control system																						
TRPP (ITN)										Test add-ons to existing equipment for imaging CL/PL/OSL																										
Procurement																																				
GeoLuC (ITN), LFI (ITN), IN (ITN)	Monochromator. Laser modules/laser diodes of different wavelengths. PMT modules. Electron gun/CL source. Mini X-ray generator. Power supply units. Mini spectrophotometer unit. Computer. Software package/license. LN2 bottle. Temperature control and gas flow modules. Materials. Many small components/consumables.												Duplicates of components found to be important for permanent installation on existing equipment, or improved versions for the new instrument, based on experience gained and funds obtained. Procurement of additional funding based on project initial results, for components outwith the scope of the present proposal: to be decided, but may include: microplate based detector; cryogenic photon counting ccd system; tunable laser diode system; industrial 0.4 MeV X-ray source; mini e-beam generator																						
									M1			1st Progress Report				M2						2nd Progress Report				M3							M4			Final Report