In stage two , partner 1 (INOE) has synthesized and investigated the following materials:

- Azoderivative based material
- Ferrocene based materials

Experimental methods encapsulation of synthesized organic material into silico- phosphate matrix by sol-gel have been developed. Organic materials , organometallic and sol-gel films were investigated by elemental analysis and spectroscopic techniques (FTIR, fluorescence, Raman)

In stage two, Coordinator INFLPR obtained the next thin films and structures by MAPLE:

- Azoderivatives (O3 ') acridine (OHA) standard ferrocene / ferrocenium carboxo - aldehyde (FCA) / ferrocene synthesized by partner P1
- OHA / Ferrocene / O3' heterostructures deposited on a polymer film (PAA or PVA or PMMA)
- Composite films O3' / Ferrocene / OHA in polymer mixture (PAA or PVA or PMMA)

The obtained films and structures were investigated for surface morphology (AFM , SEM), chemical structure (FTIR, Raman) and optical properties (ellipsometry , UV - Vis absorption of two photons). Adherent films with controlled thickness were obtained and the optimal experimental conditions were identified in order to obtain a low roughness and high capabilities in terms of second-harmonic emission. The best results were obtained for O3' and composite films O3 ' : PAA (polyacrylic acid) and films based on ferrocene.

Studies on the use of materials in integrated circuits have been performed. Samples deposited on conductor coated Si substrates have been tested in terms of conception and fabrication of devices and their application for optoswitching optoelectronic integrated circuits (P2 = Sitex) .

Determinations were performed in order to characterize the mandatory dimensional uniformity for the masks type design; tests on the optimal exposure and also establishing the configuration of conductive path, the processing flow of the switch were the performed activities . We worked on finalizing the general concept of design of the optocupling device which will be developed in the project.