The porous silicon (PS) is a material with a huge potential to be applied to different scientific fields. PS has interesting properties; its high surface area and open structure that give it a high reactivity besides optical (luminescence at room temperature) and electrical properties (change of the resistivity). Because of the PS properties, the efforts have been devoted to the incorporation of different materials in the porous network, forming nanocomposite materials. Among the materials that seek to incorporate in the PS are various metals (such as gold and silver). The inclusion of metals is with the objective to increase the luminescence efficiency, passivating the surface of the PS and also to increase the conductivity by filling the pores with materials with high conductivity. This work was performed to study the structural modification that takes place in the porous silicon layers (PSL) when they are obtained for electrodeposition using metal salt of Au in the electrolyte used to get it. The introduction of the Au nanoparticles and the formation of the PSL are performed in situ. The Structural and optical properties modified of the PSL are analyzed by Scanning Electron Microscopy (SEM), Energy Dispersive Spectrometer (EDS), Photoluminescence (PL) and Raman scattering. These measurements show the incorporation of gold nanoparticles over the PS surface. The size of the nanoparticles is between 19 and 32nm. The PL intensity showed an increment with the incorporation of the gold nanoparticles. The shift Raman shows the reduction in size of the nanostructures presents in the PS structure.

**Keywords:** Porous Silicon, Metal salt, Au nanoparticles

**Presenting author’s email:** balarama_1@yahoo.com.mx