**Influence of doping in crystallinity and electrical properties of sprayed p-type NiO thin films**

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In this work we report the effect of dopant elements in the structural, morphological and electro-optical characteristics of nickel oxide (NiO) thin films deposited by spray pyrolysis. Concerning undoped films, we observed that the precursor had influence on the crystallinity, where cubic NiO polycrystalline films where obtained at 350°C if starting from nickel chloride. Copper doping resulted in a preferential orientation along (111) for Cu concertation of 6% and P-type conduction was obtained with a carrier concertation close to 1.2x1017cm-3 and mobility of 1.9 cm2/v-1s-1, that resulted in a resistivity around 300 Ohm.cm. The transmittance for these films with around 100 nm is in the range of 60%.

Nickel acetate was also used as precursor for films deposited at different temperatures. The structure of intrinsic films remain amorphous after deposition at temperature up to 400ºC. Not even after thermal annealing at the same temperature we are able to crystallize these layers. On the other hand, when doping NiO with Li it is possible to obtain polycrystalline as-deposited layers, depending on the doping level. Moreover, the films become much more homogenous and transparent combined with improved conductivity. Nevertheless, the electrical properties are not interesting as those obtained for Cu doping.