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## Influence of the thermal treatment on the properties of germanate glasses containing transition metals

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Heavy metal oxide glasses containing transition metals are interesting for various applications in photonics including the preparation of lasers and amplifiers in the infrared region and for applications such as magnetic glasses. Glass-ceramics can be prepared by controlled heat treatment of such glasses and my also present singular properties. This work aimed the preparation and characterization of glasses in the binary system PbGeO3 SbPO4 doped with AgCl, and MnCl2. The new compositions were characterized by DSC, Raman, UV-Vis spectroscopy and transmission electron microscopy. The glasses were prepared by melting-quenching technique. Samples doped Ag and Mn were thermally treated at 435 °C (temperature above the glass transition temperature (Tg)) to achieve the nucleation and growth of the nanoparticles within the matrix. The effect of heat treatment was evaluated "in situ" using a heating system which is designed and adapted in a UV-Vis spectrometer to determine changes in optical properties of the glass as a function of time of treatment. Untreated glasses containing AgCl and MnCl2 do not exhibit absorption bands in the UV-Vis. After heat treatment, the samples are characterized by the appearance of bands with maximum at 485 (AgCl) and 525 nm (MnCl2). For the sample containing silver the band is assigned to formation of metallic nanoparticles and the absorption band is attributed to surface plasmon resonance phenomenon. The result obtained for samples containing Mn2+ suggests the presence of the ion in octahedral environment. The presence and characterization of nanoparticles are currently under consideration.