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Tesis: **"LIGHT RESPONSIVE SMART POLYMER WITH POTENTIAL BIOMIMETIC APPLICATIONS"**

Resumen:

Shape memory polymers (SMPs) are characterized by their ability to recover their original shape when exposed to specific external stimuli, for example by heating or UV light stimulus. Thermally driven SMPs require a thermal source that can bring the SMP to its glass transition temperature, making it unfavorable for certain applications such as minimally invasive surgical devices, including catheters, cast, sent, surgical staples, etc. In order to generate a light responsive SMP, it was synthesized a novel infrared light driven SMP via the incorporation of nanopaper doped with reduced graphene oxide (rGO). Due to the flexible and optically transparent scaffold provided by nanopaper and the excellent thermal conductivity of rGO, it was achieved an optically active material, which is conceptually innovative. This research sheds light on the overall optical and thermal properties of the proposed composite based on rGO-decorated nanopaper embedded within a SMP. The characterization was carried out using experimental analyses, such as differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), scanning electron microscopy (SEM), UV-Vis absorbance, Fourier transform infrared (FTIR), Raman spectroscopy and thermal imaging.