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### Study of the optical properties of poly(vinylidene fluoride) neodymium doped samples

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Polymer-based optical materials have received great attention from the researchers due to their growing use in optoelectronic applications, such as in light-emitting diodes, light electrochemical cells, and solar cells. Among these polymers, the poly(vinylidene fluoride) (PVDF) have been modified by copolymerization, insertion of specific end groups, blending also hybridization with other inorganic polymers for use in electronic and photonic devices. PVDF can be easily processed and prepared to enhance its optical properties by the insertion of rare earth ions as neodymium ( $\text{Nd}^{3+}$ ) due to their high efficiency at room temperature. However, few works can be found in the literature referred to the study regarding optical properties of PVDF. Thus, in this study, PVDF samples were doped with Nd oxide to verify the improvements in the optical fluorescence of the polymeric matrix. The FT-IR measurements confirmed the dopant incorporation inside the samples. From optical measurements, it was observed a broadening in absorption as well as the fluorescence spectra with the increase of Nd content. In summary, the experimental results revealed that the PVDF/Nd is a potential candidate for optical and photonic applications.

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