عنوان مقاله:

Optical and thermal anisotropy of thin-polyvinyl alcohol film modified by rod gold nanoparticles

محل انتشار:

اولین همایش بین المللی علوم و فناوری نانو (سال: 1399)

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نویسندگان:

Hora Alhosseini Almodarresiyeh - *Department of Materials and metallurgy Engineering, Meybod University, Meybod, Iran*

Siyamak Shahab - *Institute of Physical Organic Chemistry of NASB, ۲۲۰۰۷۲, Minsk, St. Surganova ۱۳, Belarusian State University, ISEI BSU, Minsk, Republic of Belarus*

خلاصه مقاله:

In the present study, a new type of dichroic polarizing films based on the poly(vinyl alcohol) (PVA) and rod gold nanoparticles for IR regions of the spectrum were created. Toobtain rod Au NPs via the seed-mediated growth method with the longitudinal band between 700-800 nm (length 42 nm and diameter 12 nm), the optimum concentration of AgNO3 and HAuCl4 was found. The stretched PVA-film containing rod Au NPs has optical anisotropy at λmax = 763 nm. It was established that oriented PVA-films are a phenomenon of the anisotropy of thermal conductivity (λ/λ). In the films the thermal conductivity in the direction of orientation (λ) was higher than in a direction perpendicular to the orientation (λ). This is very important for the existence of thermostable polarizing PVA-films. These NPs can be used with mixture of the dichroic dyes in PVA-film to produce broadband polarizer.

کلمات کلیدی:

rod Au NPs, PVA-film, dichroic, anisotropy, thermal conductivity.