



مرکز علوم و فناوری نانو برگزار می کند:

افزایش وضوح در تصویربرداری پزشکی با استفاده از نانوذرات

سخنران:

سارا سلاجقه

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#### **Abstract:**

An urgent need for early detection and diagnosis of diseases continuously pushes the advancements of imaging modalities and contrast agents. Current challenges remain for fast and detailed imaging of tissue microstructures and lesion characterization that could be achieved via development of nontoxic contrast agents with longer circulation time. Nanoparticle technology offers this possibility. Here, we review nanoparticle-based contrast agents employed in most common biomedical imaging modalities, including fluorescence imaging, MRI, CT, US, PET and SPECT, addressing their structure related features, advantages and limitations. Furthermore, their applications in each imaging modality are also reviewed using commonly studied examples. Future research will investigate multifunctional nanoplatforms to address safety, efficacy and theranostic capabilities. Nanoparticles as imaging contrast agents have promise to greatly benefit clinical practice.