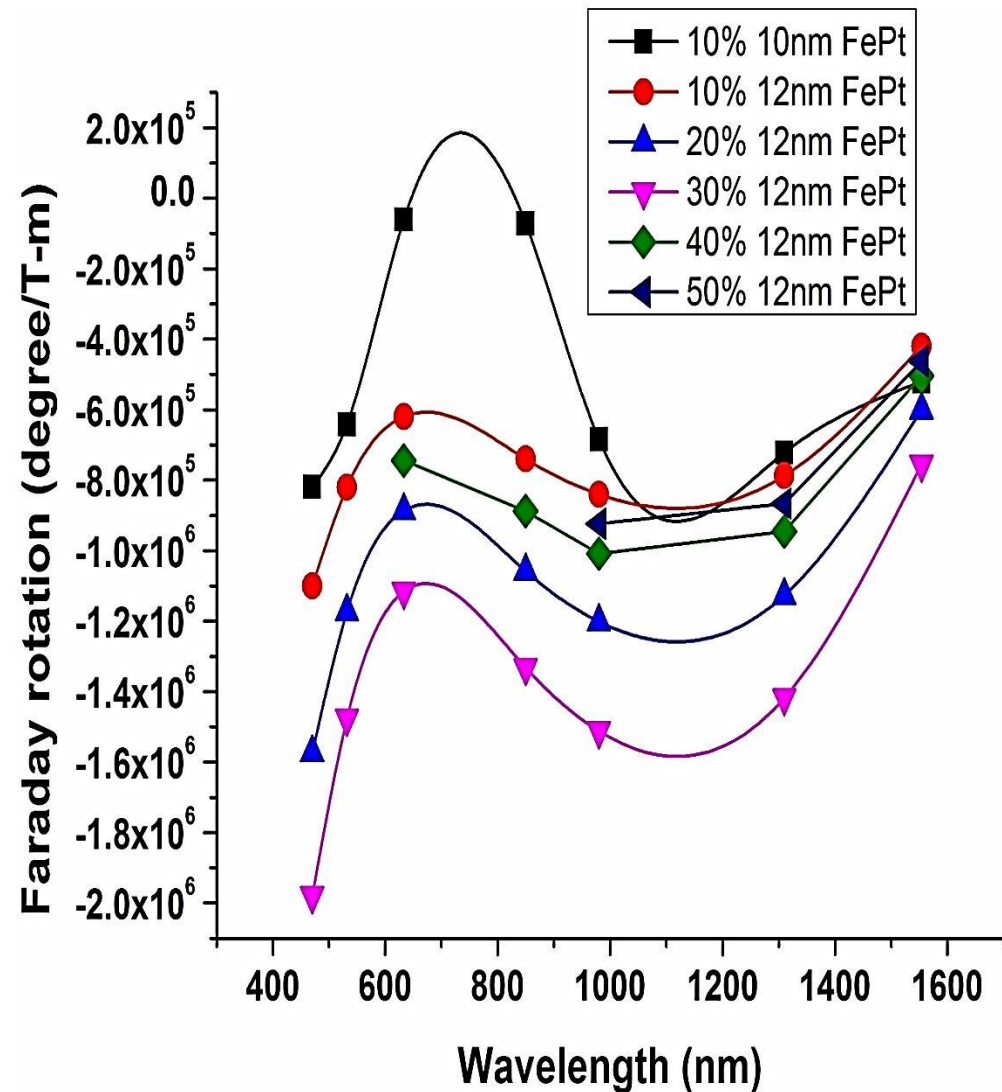


# FePt Nanoparticle/Block Copolymer Films for Magneto-Optic Brain Imaging

A collaboration between R. A. Norwood in the College of Optical Sciences at the University of Arizona (UA) and J. J. Watkins (UMass) has developed unique FePt / zirconia / block copolymer nanocomposites for use in ultralow (femtotesla) magnetic field detection, with the primary application being real-time, noninvasive, room temperature brain imaging based on photonic sensors. UA team has determined that the Faraday rotation Verdet constants for some of these composites reach values that are high enough to be used in brain imaging applications at technologically available optical wavelengths as shown in the figure, where the absolute value of the Verdet constant reaches  $1.6 \times 10^{-6}$  in the near infrared wavelength region.



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