

Seminar "Development of novel fast scintillators based on organic polymers"

Prof. Koshimizu



Date: Wednesday, May 17, 2023 - 14:00 to 15:00

Location: Seminar Room L4E48

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Talk title: Development of novel fast scintillators based on organic polymers

Abstract:

Scintillators are a kind of phosphors used for real-time radiation detection. Among scintillators based on various compounds, those based on organic polymers have been used for their fast response and scalability and are called plastic scintillators. The shortcomings of the plastic scintillators are: (1) scintillation light yields significantly lower than those of inorganic scintillators and (2) low interaction probability with high-energy photons such as X-rays and gamma rays owing to the low atomic numbers of the constituent elements. To overcome the shortcoming (1), we tried to enhance the scintillation light yields using organic phosphor molecules having aggregation-induced emission or thermally activated delayed fluorescence. To overcome the shortcoming (2), we loaded nanoparticles of heavy metal oxides to enhance the effective atomic number of the scintillators. Representative results of these approaches will be presented with discussion on their effectiveness.