Faculty of Engineering
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Research on Reaction Intermediates and Useful Materials Transformation by Electromagnetic Waves

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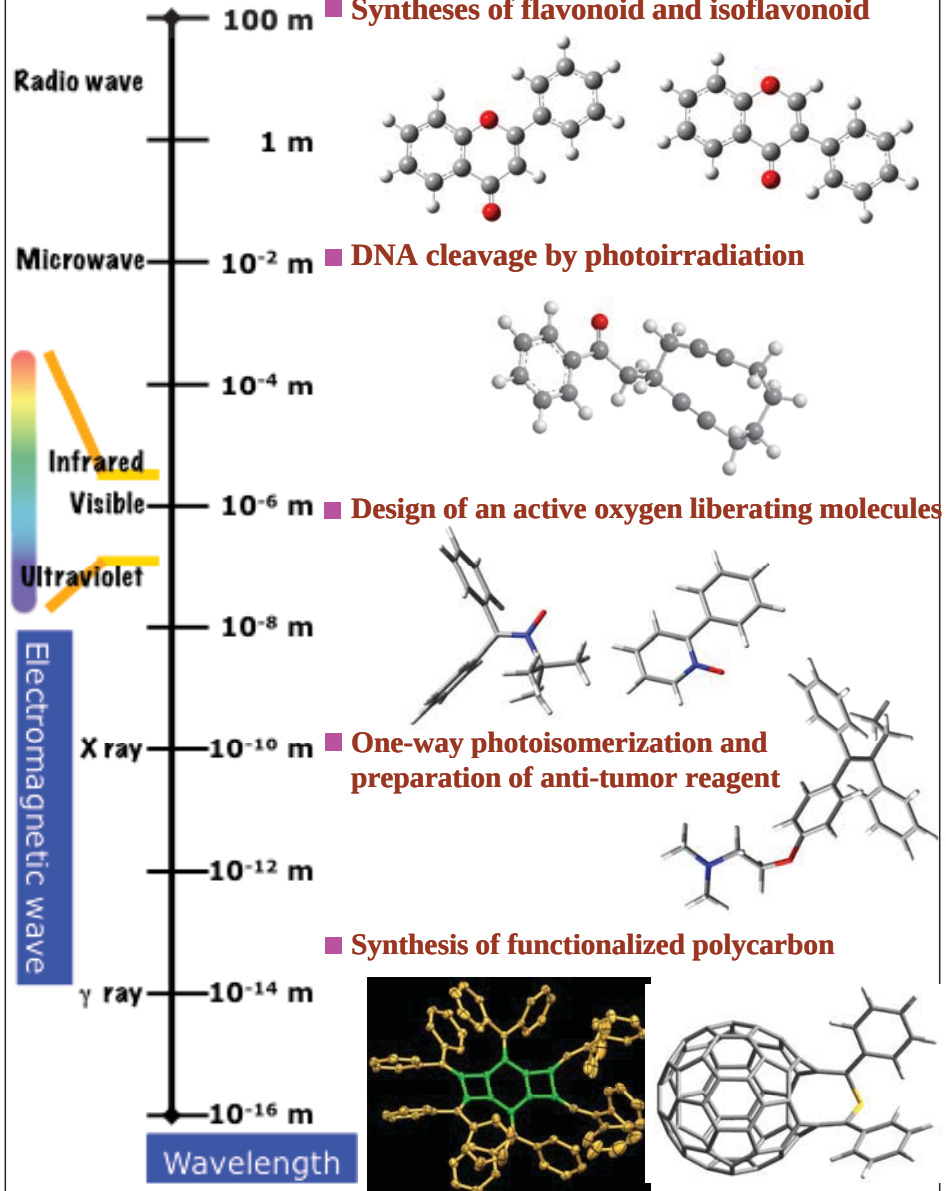

Content:

This research aims to develop new uses for electromagnetic waves like ultraviolet, visible light, and microwave. Light can be used in various forms, including ultraviolet light sources, white light sources similar to sunlight, or (ultraviolet) laser light sources and (ultraviolet) pulse laser light sources. By using the light energy, which possesses unique characteristics and called as “designer light” in organic synthesis and functional materials synthesis, environmentally-friendly production processes for intelligent materials with diverse functions and properties are developed.

LEDs are key technology of Tokushima Prefecture and currently, leading uses for LED light include illumination, decoration, display, and communication. Further application development is underway. LED light is a green and highly-efficient energy source, and this research also aims towards controlled use of LED light as an energy source that will produce useful compounds and functional materials. This research would enable the traditionally difficult chemical transformations and synthesis of functionalized materials to make easier just by exposing molecules to electromagnetic. Light (photons) is recognized to be “a reagent with no volume”. Also in line with the product study, by examining reaction intermediates produced during the chemical reactions upon irradiation of light and microwave, useful and competent chemical transformation processes will be created rationally.

Keywords : photochemical reactions, reaction intermediate, functionalized molecule

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