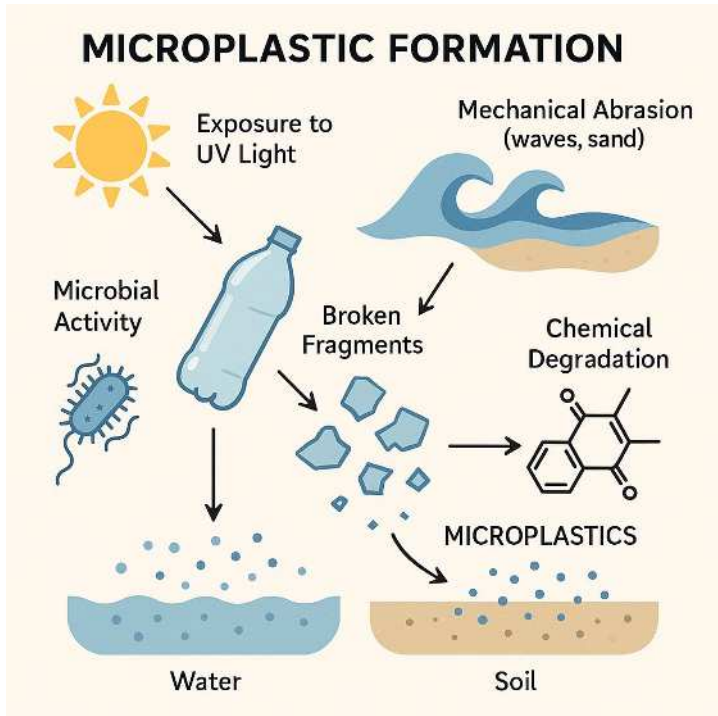


Name NAKATANI Hisayuki	Job Title Professor	Area of Expertise Polymer Engineering
1. Main Research Topics ① Elucidation of the mechanism of microplastic generation - Research on how polymer materials become microplastics in the environment from the perspectives of photodegradation and biodegradation. - Evaluate the effects of UVA (ultraviolet rays) and microbial degradation. ② Development of microplastic collection and recycling technologies - Explore the possibility of biological treatment of plastics through selective decomposition experiments using mealworms (insects). - Evaluate the decomposition behavior of composite materials such as GFRP (glass fiber reinforced plastic). ③ Design and certification evaluation technology for environmentally friendly polymer materials - Creation of polymers with photodegradability and biodegradability. - Control of degradation behavior in the environment through functionalization.  MICROPLASTIC FORMATION The diagram illustrates the pathways of microplastic formation. A plastic bottle is shown being subjected to three main processes: Exposure to UV Light (represented by a sun icon), Mechanical Abrasion (represented by waves and sand), and Microbial Activity (represented by a bacterium icon). These processes lead to Broken Fragments of the plastic. These fragments can then undergo Chemical Degradation, shown with a chemical structure of a polycyclic aromatic compound. Finally, the fragments and degradation products are shown as MICROPLASTICS in both Water and Soil environments. Mealworms feeding on polystyrene foam! 		
2. Keywords Microplastics, biodegradation, mealworms, recycling		
3. Remarks and Websites Innovative decomposition evaluation utilizing biological organisms, development of light decomposition and recycling technologies for difficult-to-decompose materials such as GFRP, and evaluation of behavior in actual environments. researchmap: https://researchmap.jp/read0111962 Laboratory: https://www.cms.nagasaki-u.ac.jp/lab/kobunshi/		