

JTEKT Receives “Prix HIRN 2022” Award in the Study on Polymer Tribology

On June 2, 2022, Takeshi Kunishima, an assistant manager in JTEKT’s Material R&D Department, became the first Japanese to receive the “Prix HIRN 2022” awarded by Le Groupe Scientifique et Technique Tribologie de l’Association Française de Mécanique (AFM), a French academic society in the field of mechanical and tribology. This award is given out each year to the single most outstanding PhD study related to tribology (the study of friction, wear, lubrication, etc.) at French universities and research institutes. This award is the result of joint research conducted with the Laboratoire de Tribologie et Dynamique des Systèmes (LTDS), a research institute at École Centrale de Lyon and the Centre National de la Recherche Scientifique (CNRS) in France. Dr. Kunishima, who studied abroad at LTDS at the expense of JTEKT from June 2018 to June 2021, played a major role in promoting this joint research, which he compiled as part of his PhD study. This award serves as recognition of JTEKT’s superb material development and evaluation technology capabilities.

The title of this award-winning PhD study is “Tribology of PA66 or fiber-reinforced composite/steel under grease lubrication.” As part of a group collaboration with Dr. Philippe Kapsa (Senior Director) and Dr. Vincent Fridrici (Associate Professor) from LTDS, JTEKT has been conducting continuous research on topics related to tribological behavior, such as the mechanisms of friction and wear and tribochemical reactions on sliding surfaces, by focusing on the sliding behavior of steel, PA66 and fiber-reinforced composite under grease lubrication. Through this collaboration, we have succeeded in clarifying the unique tribological behavior that steel and polymer under grease lubrication exhibit when subjected to high contact stress, which has hitherto remained unclear, as well as systematically clarified the mechanism of this behavior.

The results of this research are related to the fundamentals of material development and sliding surface design. For example, these results will be used in developing the next generation of electric power steering (EPS) reducers, which are comprised of a steel worm shaft and a polymer worm wheel. Future EPS development is expected to contribute to products in various manners, such as downsizing for improved fuel efficiency and increased output for enabling large vehicles to be driven autonomously.

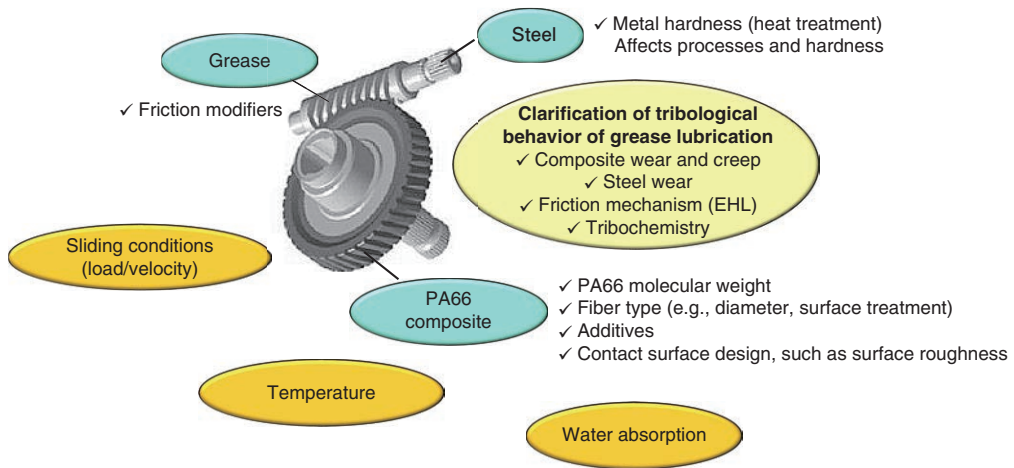
JTEKT will continue deepening its cooperation with major overseas universities and research institutes as part of its aim of enhancing the global nature of its research and development. Furthermore, through the utilization of leading research and technology from around the world, JTEKT will realize its goal of developing products that are not only environmentally friendly, but also No. 1 & Only One.



Dr. Takeshi Kunishima



Photo of the award ceremony (June 2, 2022)
(From left) Joint researchers Dr. Philippe Kapsa
(Senior Director) and Dr. Vincent Fridrici
(Associate Professor) from LTDS



Research overview