

# Optical Manipulation and Structured Materials Conference 2021 OMC 2021

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**SPIE. and JSPS KAKENHI “Nano-material optical manipulation”**

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Since the first demonstration of an optical tweezer based on optical radiation forces (scattering and gradient forces) created by a tightly focused laser beam, optical tweezers have been widely investigated in a variety of research fields, including biology, physics, and chemistry.

Conventional optical tweezers have been mostly adopted to dielectric particles with a dimension range from hundreds of nanometers to tens of micrometers. However, they do not always enable us to efficiently trap metallic particles.

In recent years, plasmonic tweezers based on enhanced radiation forces owing to surface plasmon polaritons in metallic nanostructures have been successfully demonstrated to efficiently trap and manipulate both nanoscale-sized dielectric and metallic particles.

Also, structured lights, such as higher order Laguerre-Gaussian and Bessel beams carry optical angular momenta, and they provide unique tweezing abilities, for instance, for inducing an orbital motion of the trapped particles without employing mechanical systems.

Since 2014, the OMC has successfully collected more than 80 participants from home and abroad. The OMC 2021 conference will be held in Chiba University, and it aims to present and discuss up-to-date scientific subjects, new technologies, and applications related to the fields of optical and plasmonic tweezers, the manipulation of nanostructures, structured optical fields and their satellite topics.

The OMC 2021 will also have a special session to mourn the passing of Arthur Ashkin (Nobel Laureate), and Juan José Sáenz, known for his extraordinary accomplishments in optical trapping.

We hope that this conference will also facilitate scientific and professional networking as well as scientific inspiration through discussions.

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