Abstract:

Multi-beam Optical Tweezers (MOT) such as Time-Shared Scanning method (TSS) and Generalized Phase Contrast method (GPC) is suitable for dexterous cell manipulation using multiple microtools. We developed Integrated Optical Tweezers (IOT) which was integrated with TSS for high speed manipulation and GPC for a lot of trapping. We applied unilateral master slave control (UMS) to TSS for dexterous manipulation. We applied bilateral master slave control (BMSC) to TSS. We confirmed the effectiveness of constructed BMSC system from experimental results.

Experiments:

- BMSC using TSS
- Teleportation with TSS using BMSC

Conclusions:

- Developed integrated optical tweezers using TSS for high speed manipulation and GPC for large number of trapping.
- Applied BMSC to TSS for dexterous manipulation.
- Confirmed the effectiveness of constructed BMSC system from experimental results.

References: