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► **To cite this version:**

Charl Smalberger, Craig Stuart Carlson, David Milton Rubin, Michiel Postema. Experimental setup for optical observation of ultrasound-assisted cell manipulation. 64th Annual Conference of the South African Institute of Physics, Jul 2019, Polokwane, South Africa. pp.72. hal-03543379

HAL Id: hal-03543379

<https://hal.science/hal-03543379>

Submitted on 21 Feb 2022

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Experimental setup for optical observation of ultrasound-assisted cell manipulation



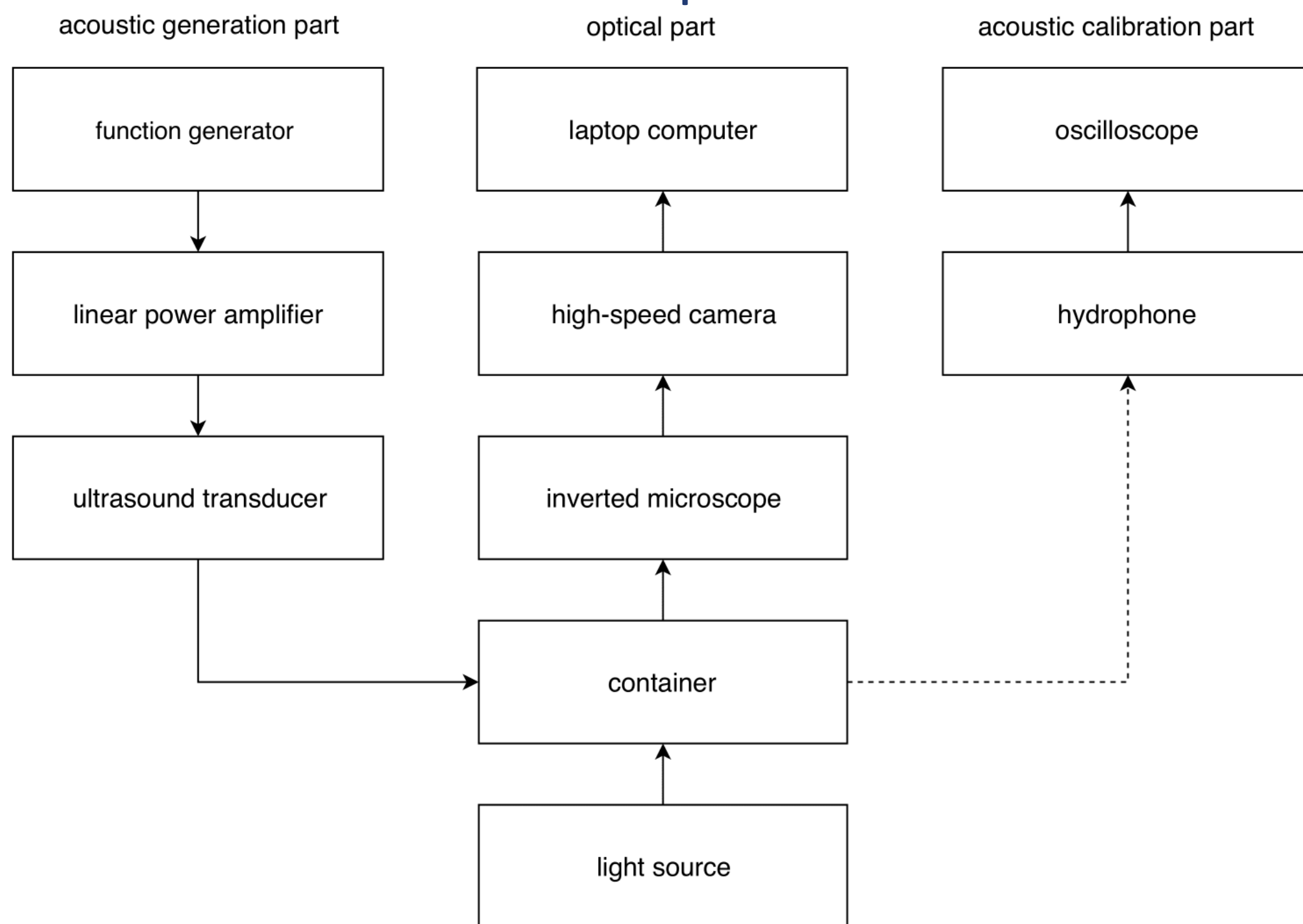
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Setup



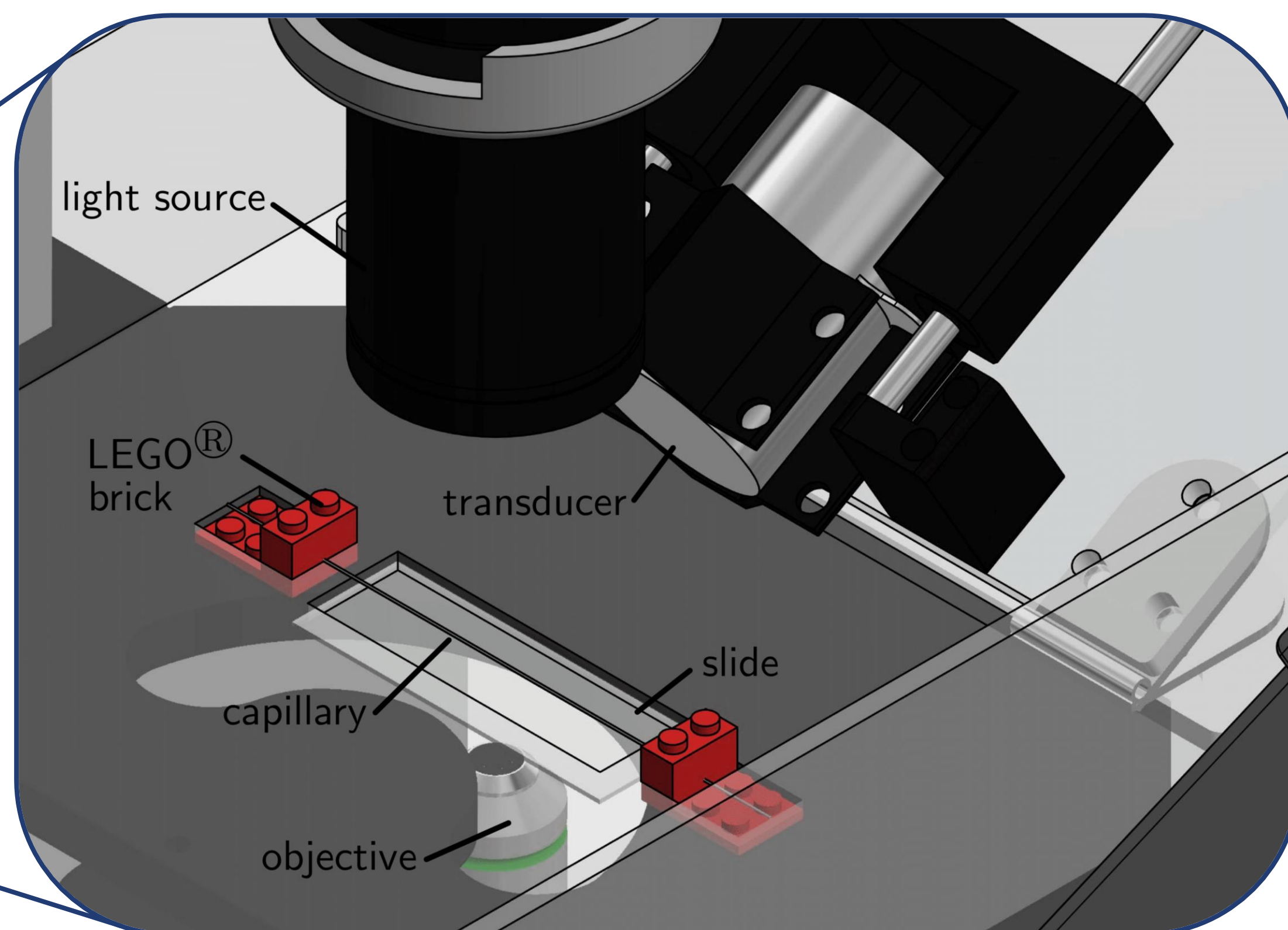
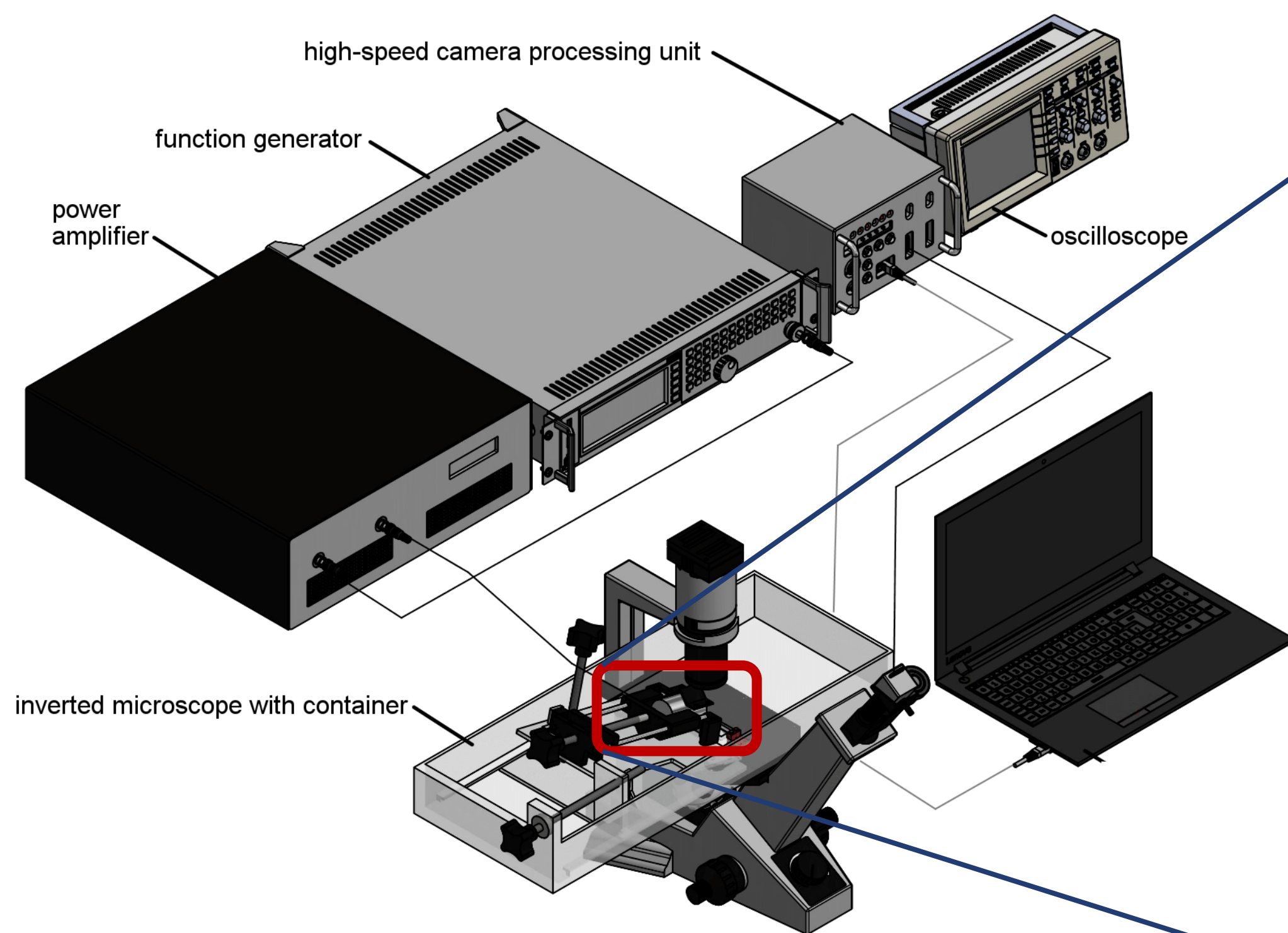
Goal

To optically observe the interactions of cells and other micromaterials with ultrasound.

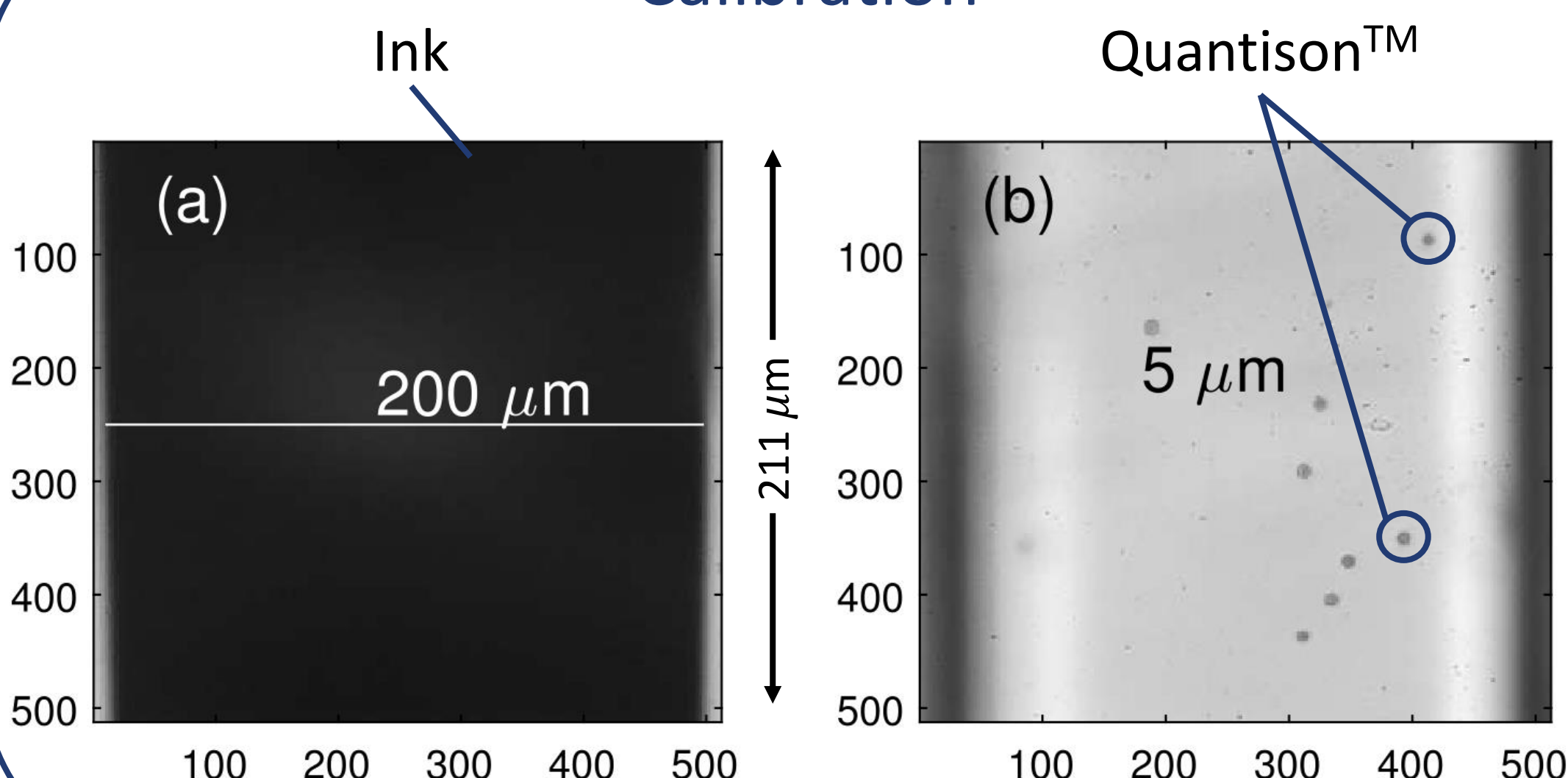
Living cells can be manipulated in sound fields. This study shows the design of an experimental setup for simultaneous ultrasonic cell manipulation and high-speed observation. With this setup an ultrasound transducer can be positioned at a variable distance and angle from the optical region of interest. Our preliminary result confirms that micromaterials can be forced to translate and accumulate in an ultrasound field.

Applications

Cell separation, cell eradication, parasite detection.



Calibration



Sonication

Antibubble cluster @ 5.9 MHz, 0.3 MPa.

