

Abstract Submitted  
for the DFD05 Meeting of  
The American Physical Society

**Performance of mosquito's pump** KENJI KIKUCHI, NOBUYUKI TERADA, OSAMU MOCHIZUKI, Toyo University, BIOMECHANICAL ENGINEERING LABORATORY TEAM — The flow of human blood in Mosquito's proboscis on Hagen-Poiseuille flow is investigated by using micro PIV system to apply mosquito's sucking system for micro-TAS devices. We want to know how high the power of Mosquito's pump is and how small the resistance in a proboscis is, a structure of Mosquito's sucking pump, and its characteristics as mechanical pump. We made the mosquito suck blood of our arm to obtain the average value, made many slices of a mosquito with  $2\mu\text{m}$  thickness after fixed by wax. We anatomized the mosquito's head and picked up the sucking pump under the microscope to know its volume. Mosquito's pump shows high performance compared with the artificial pumps. The surfaces of proboscis were taken by using SEM, AFM because it is important factor for interaction between flow and its wall. Visualization of the blood flows near the tip of and inside proboscis are taken by micro PIV system to know the flow rate. We estimate the power of pump and the friction drag of proboscis by using these data.

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Date submitted: 03 Aug 2005

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