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**Micro-viscometer using acoustic wave absorption in  
micro-chamber and channel**

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A micro-viscometer is designed for real-time measurement on the viscosity change of biomaterial including DNA or RNA, etc. It is composed of two chambers and several micro-channels connecting between them. Each chamber has a PZT unimorph membrane for generating and sensing the sound waves. Namely, one is regarded as an actuator, the other as a sensor. Micro-channels, which have the large attenuation of acoustic waves caused by wall effect, are applied to the micro-viscometer for increasing viscosity effect. When the actuator is driven at a resonance frequency under the condition of continuous flowing of liquid through an inlet/outlet hole, the sensor can detect the amplitude differences caused by viscosity change. Therefore, it is possible to measure the viscosity change in real time by detecting the signal change of sensor. The micro-viscometer can be also applied to the integration kit such as LOC(Lab-On a Chip) to detect whether DNA is amplified by micro-PCR(Polymerase Chain Reaction) and it will give a first opportunity for experimentally evaluating the viscosity effect on the propagation of acoustic waves in micro-channel. [Research supported by MRCnd of DAPA]