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TITLE

Device for controlling fluid motion into micro/nano channels

INVENTORS

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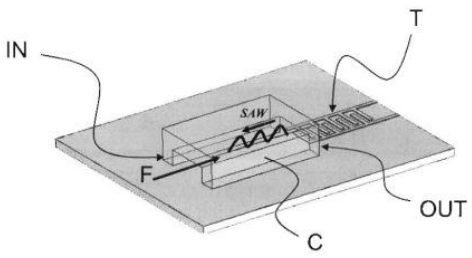
DESCRIPTION

The invention provides the active control of fluids in fluidic micro and nanostructures onto chip by using the surface acoustic streaming flow mechanism. The invention controls the fluid motion in micro and nanochannels by surface acoustic waves (SAWs) propagating in opposite direction to the desired direction we want the fluid move. The surface acoustic waves are generated by interdigital transducer electrodes on piezoelectric structure; the invention differs from already existing SAW microfluidic disposables and is able pump very efficiently the fluid; moreover, the obtainment of microfluidic systems with integrated micropumps devices and microvalve devices, with a variety of possibilities in terms of assembly and integration, is easily obtainable. The invention allows performing multiple analyses, both chemical and optical ones, in very short time and using very small quantities of analytes and chemicals; typical volumes used in these types of disposables are ranging between picoliters and nanoliters.



APPLICATIONS

The invention can be used in many different applications such as biological, chemical, clinical, optofluidic and sensor devices.

KEYWORDS

microfluidic, acoustic wave, biological, sensor, nanochannel

BIBLIOGRAPHIC DATA

1) Dispositivo per il controllo del moto di fluidi in micro o nano canali tramite onde acustiche superficiali	
Application Number	TO2007A000554
Priority Date	July 26, 2007
Applicants	Fondazione Istituto Italiano di Tecnologia
2) Device for controlling fluid motion into micro/nano channels by means of surface acoustic waves	
Application Number	WO/2009/013705
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