

Title (en)

MICROFLUIDIC ELECTROWETTING DEVICE APPARATUS HAVING A COVALENTLY BOUND HYDROPHOBIC SURFACE

Title (de)

MIKROFLUIDISCHE ELEKTROBENZUNGSVORRICHTUNG MIT EINER KOVALENT GEBUNDENEN HYDROPHOBEN OBERFLÄCHE

Title (fr)

APPAREIL MICROFLUIDIQUE COMPRENANT UN DISPOSITIF D'ÉLECTROMOUILLAGE AYANT UNE SURFACE HYDROPHOBE LIÉE PAR COVALENCE

Publication

**EP 3370868 A1 20180912 (EN)**

Application

**EP 16794477 A 20161027**

Priority

- US 201562246605 P 20151027
- US 201562247725 P 20151028
- US 201615135707 A 20160422
- US 201662342131 P 20160526
- US 201662410238 P 20161019
- US 2016059234 W 20161027

Abstract (en)

[origin: WO2017075295A1] Microfluidic devices having an electrowetting configuration and an optimized droplet actuation surface are provided. The devices include a conductive substrate having a dielectric layer, a hydrophobic layer covalently bonded to the dielectric layer, and a first electrode electrically coupled to the dielectric layer and configured to be connected to a voltage source. The microfluidic devices also include a second electrode, optionally included in a cover, configured to be connected to the voltage source. The hydrophobic layer features self-associating molecules covalently bonded to a surface of the dielectric layer in a manner that produces a densely-packed monolayer that resists intercalation and or penetration by polar molecules or species. Also provided are microfluidic devices having an electrowetting configuration that further include a section or module having a dielectrophoresis configuration; systems that include any of the microfluidic devices in combination with an aqueous droplet and a fluidic medium immiscible with the medium of the aqueous droplet; related kits; and methods of manipulating droplets, optionally containing micro-objects such as biological cells, within the microfluidic devices.

IPC 8 full level

**B01L 3/00** (2006.01)

CPC (source: EP IL KR)

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**US 2016059234 W 20161027**; AU 2016344171 A 20161027; AU 2021286430 A 20211217; CA 3001616 A 20161027; CN 201680077445 A 20161027; CN 202210023074 A 20161027; EP 16794477 A 20161027; EP 20211621 A 20161027; IL 25885118 A 20180422; JP 2018519385 A 20161027; JP 2021088097 A 20210526; KR 20187014919 A 20161027; SG 10202107069U A 20161027; SG 11201802968V A 20161027; TW 105134881 A 20161027; TW 109142086 A 20161027