平板显示中的双稳态技术：现状与进展

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平板显示中的双稳态技术：现状与进展

内容提要：

- 平板显示中的像素信息存储技术
- 双稳态用于存储的原理与实现
- 液晶显示器件中的双稳态技术概览
- 电泳与微机电双稳态技术概览
- OLED双稳态器件的结构与原理
- FED双稳态器件的结构与实现

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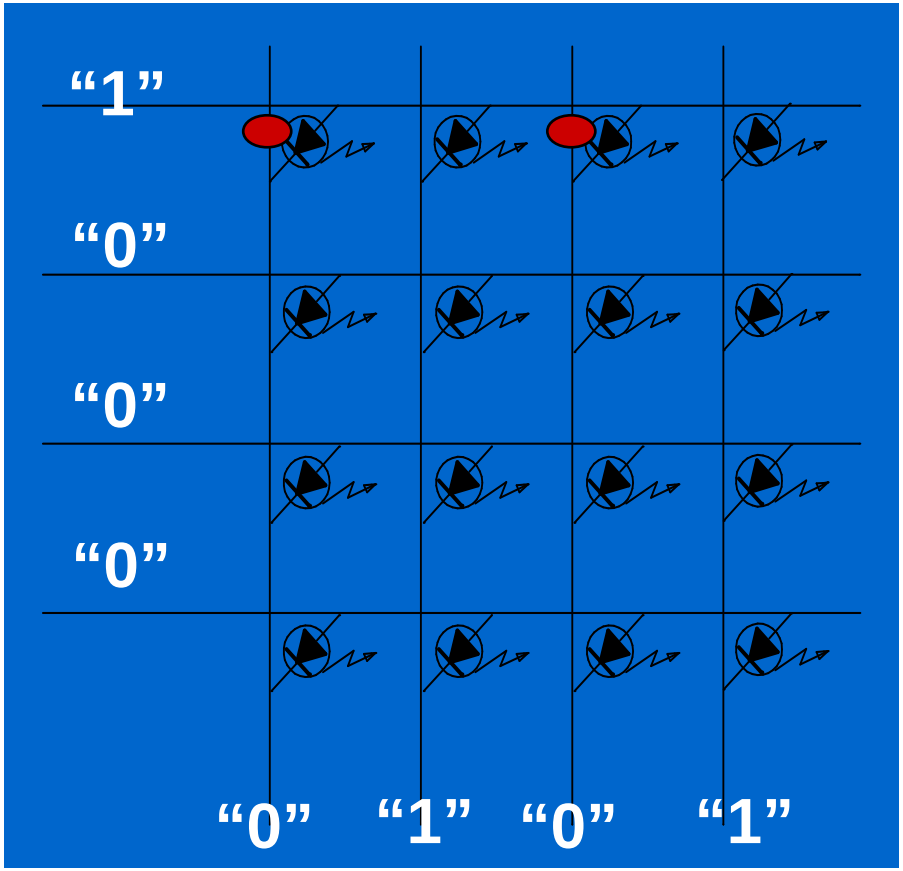
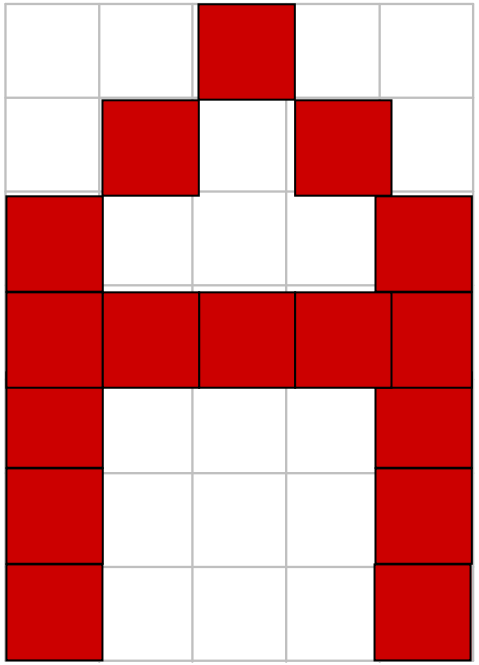
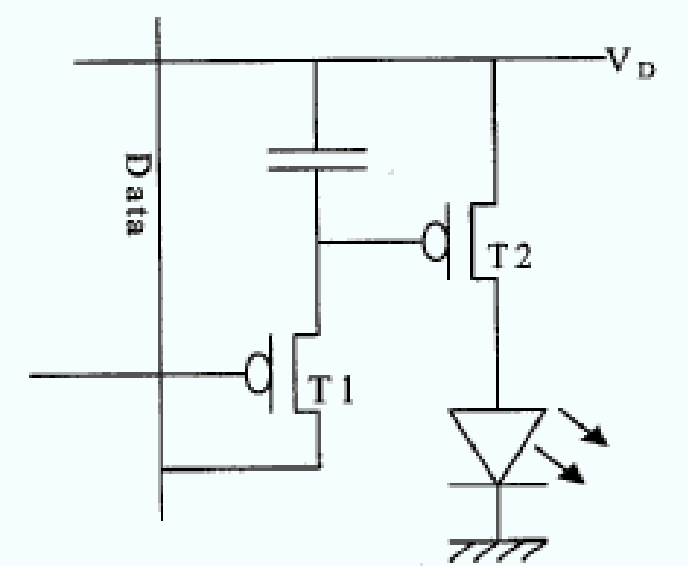
1. 平板显示中的像素信息存储技术

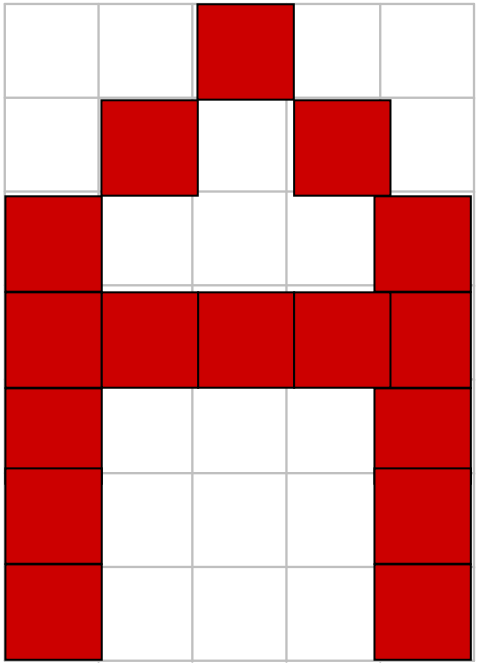




简单矩阵的驱动方法与缺点

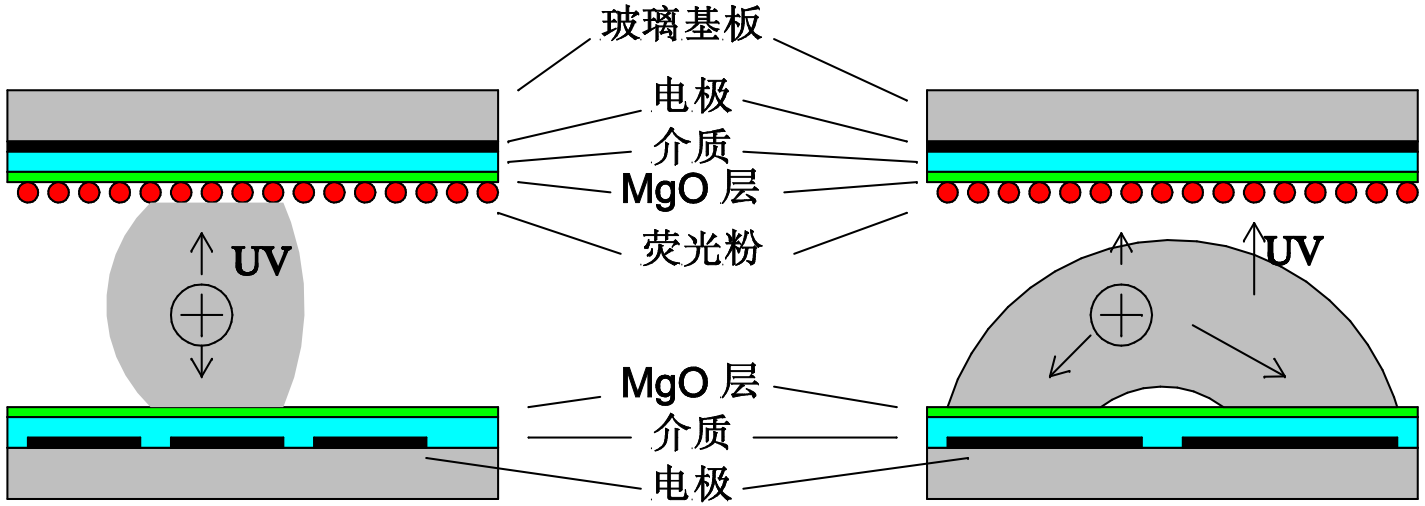
1. 平板显示中的像素信息存储技术





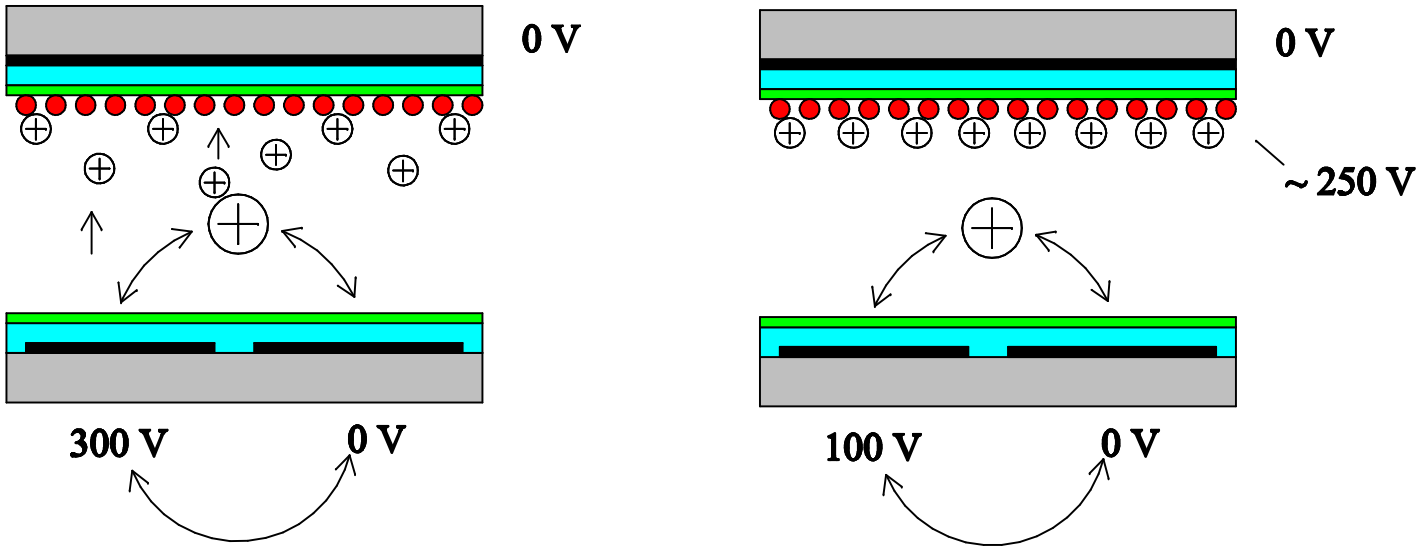
像素信息的存储方法与优缺点

1. 平板显示中的像素信息存储技术



等离子器件的双稳态特性与存储功能

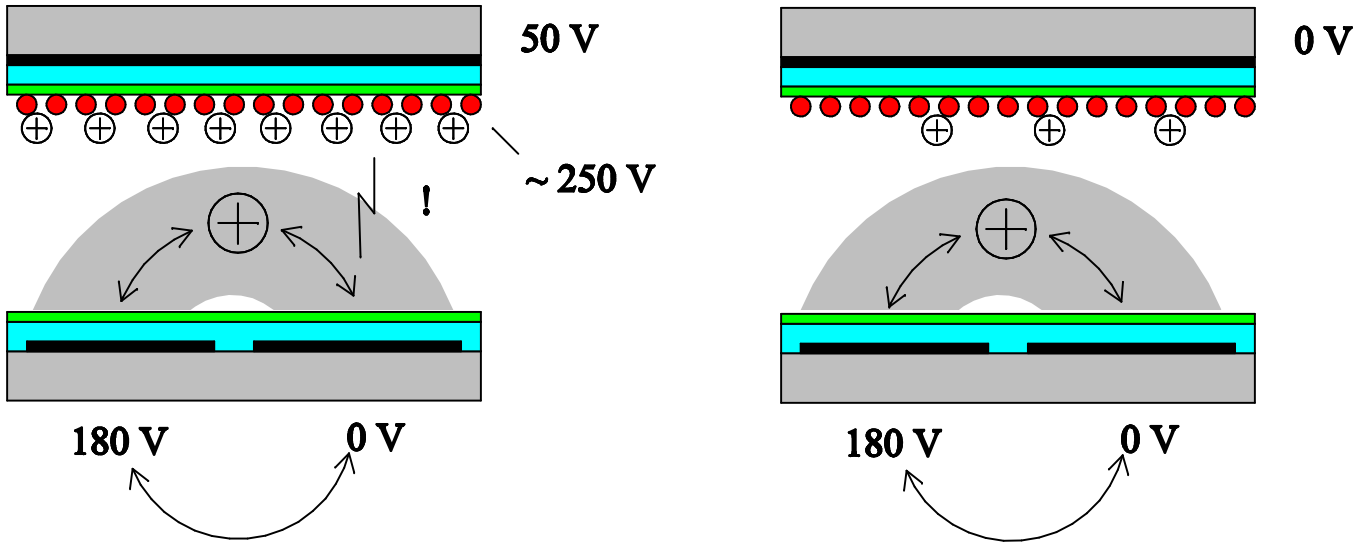
1. 平板显示中的像素信息存储技术



预写入　　整理壁电荷

PDP器件的双稳态特性与驱动 （1）

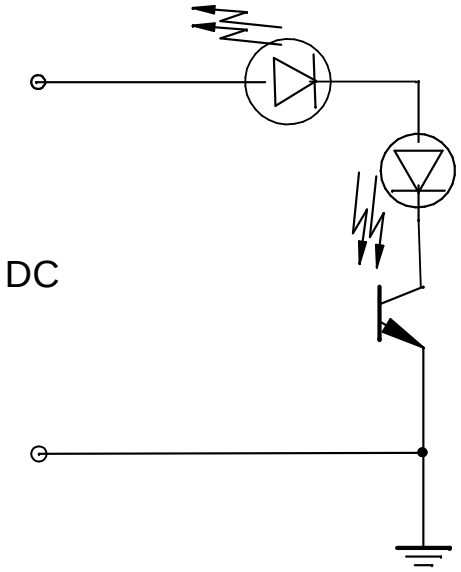
1. 平板显示中的像素信息存储技术

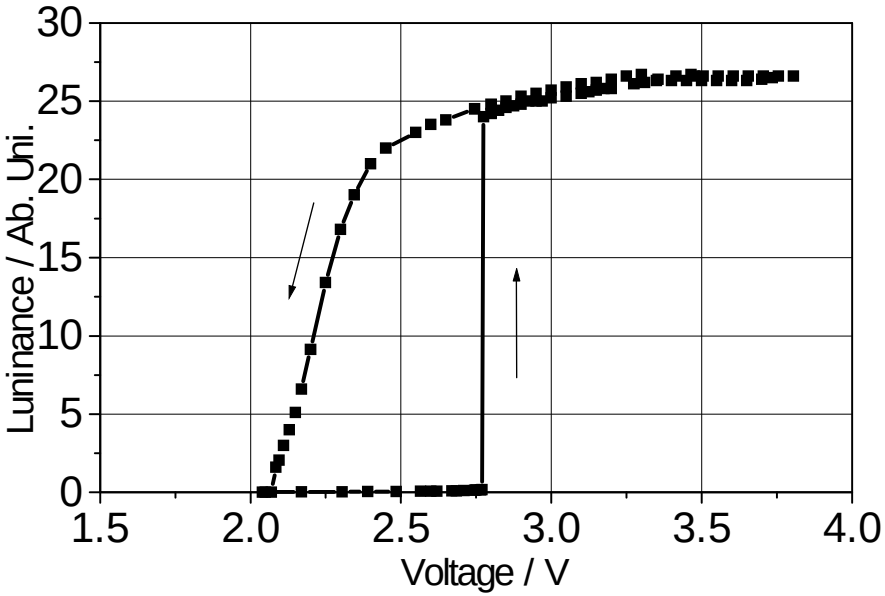


信号写入　　显示保持

PDP器件的双稳态特性与驱动（2）

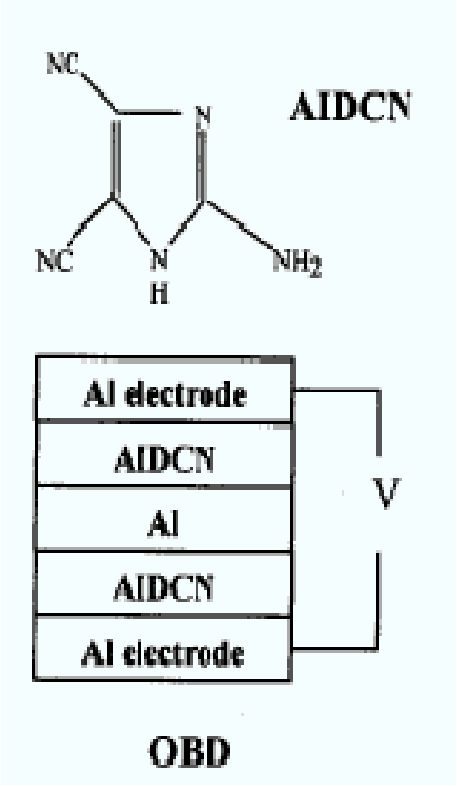
2. 双稳态用于存储的原理与实现

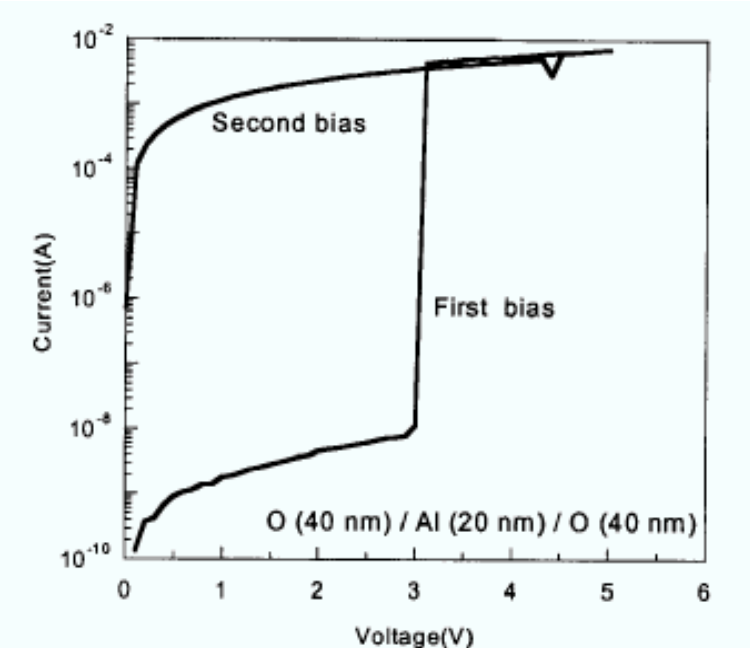




具有双稳态特性的LED像素的构建

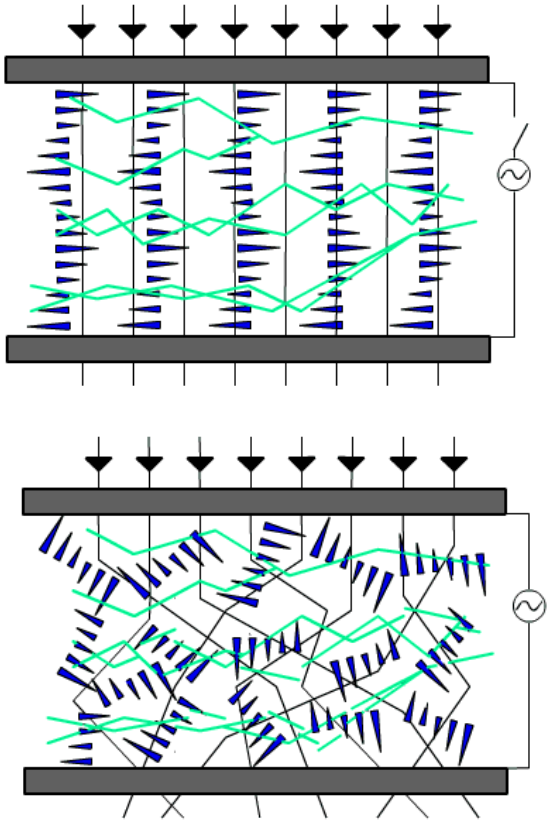
2. 双稳态用于存储的原理与实现

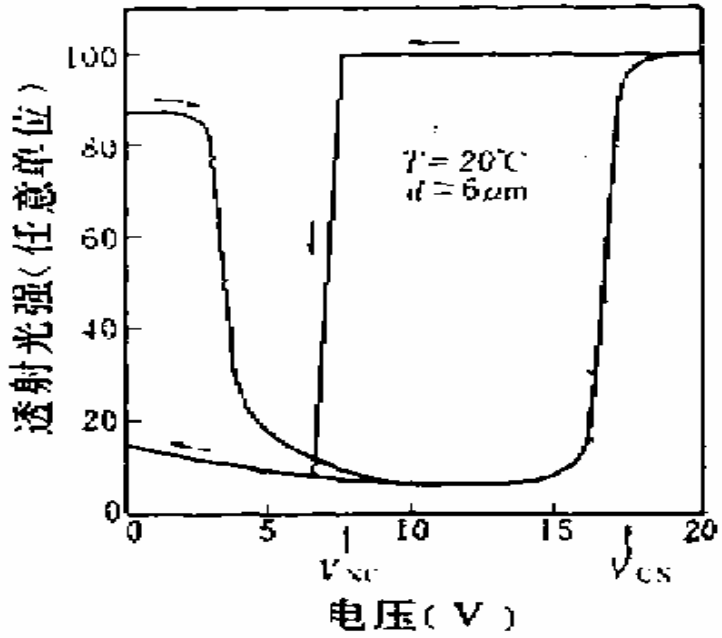




具有双稳态 V-I 特性的有机元件

2. 双稳态用于存储的原理与实现





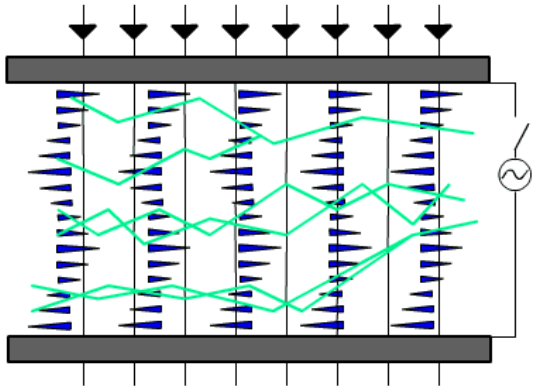
透射光强对电压的依存性

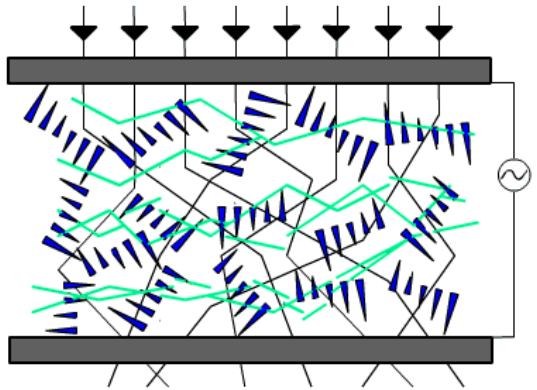
双稳态 元件特点：驰豫回线

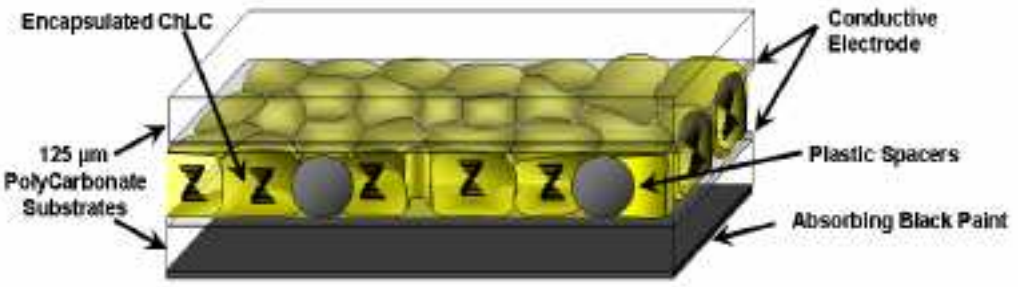
2. 双稳态用于存储的原理与实现

手性液晶的零场双稳态例子

3. 液晶显示器件中的双稳态技术概览







Kent州立大学手性液晶的双稳态显示器

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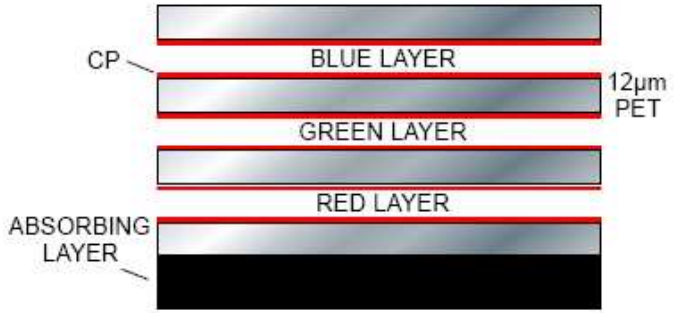
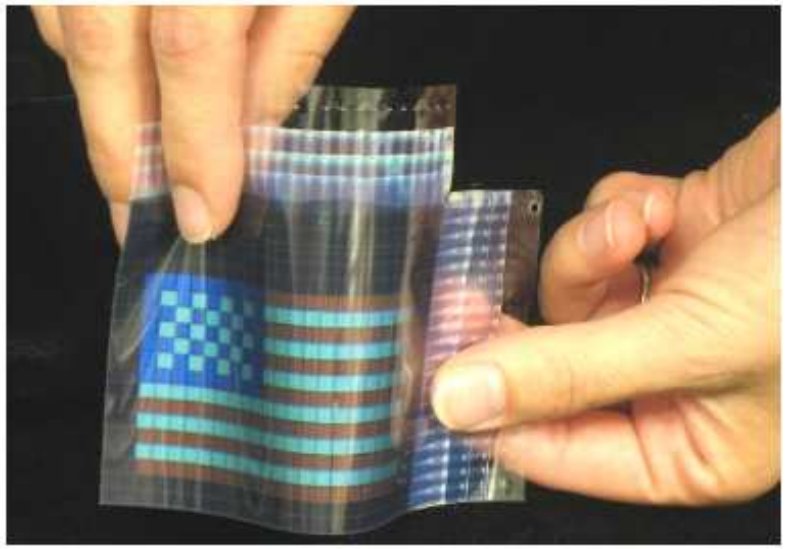
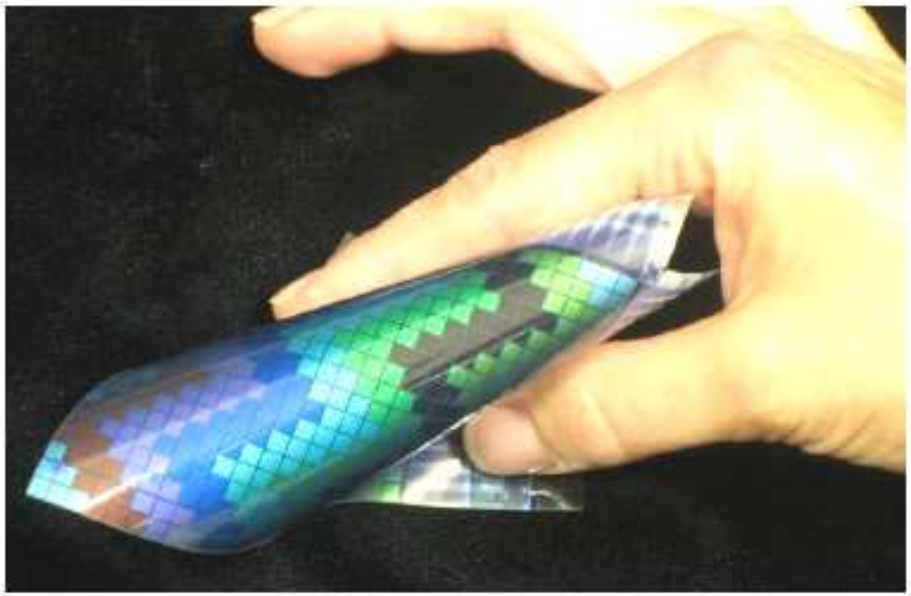
3. 液晶显示器件中的双稳态技术概览







开发该项技术的公司有
IBM、Philips、HP以及
Fujitsu。

Kent州立大学手性液晶的双稳态显示器

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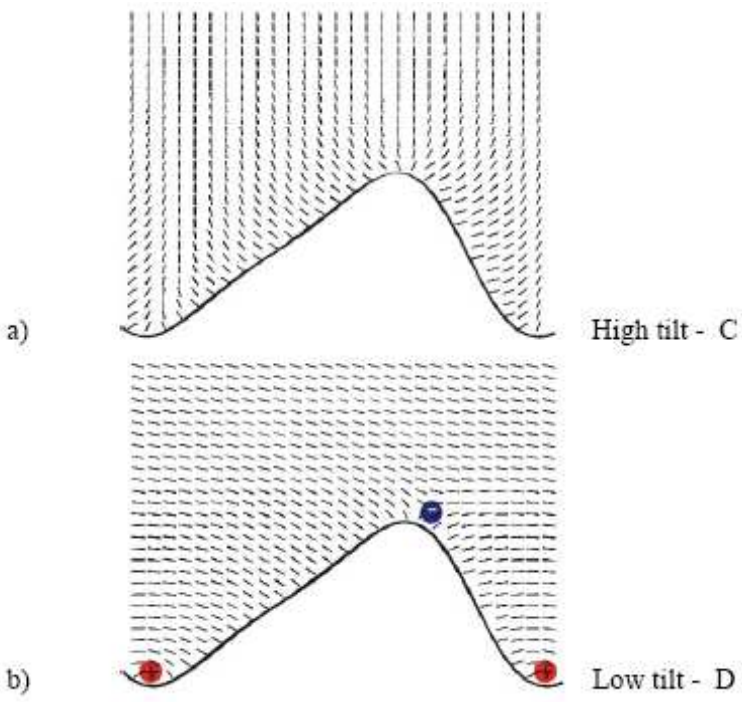
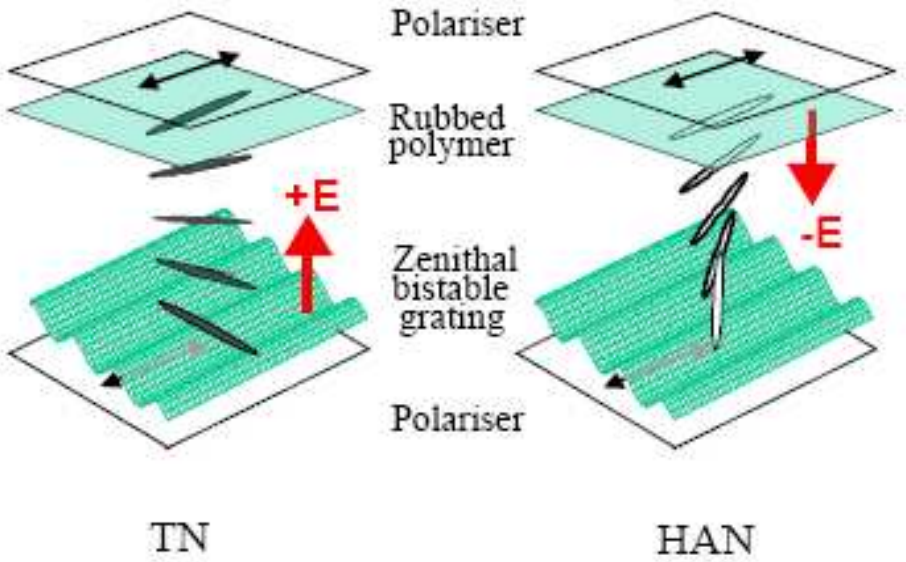
3. 液晶显示器件中的双稳态技术概览





向列液晶的顶点双稳态技术（ZBD技术）

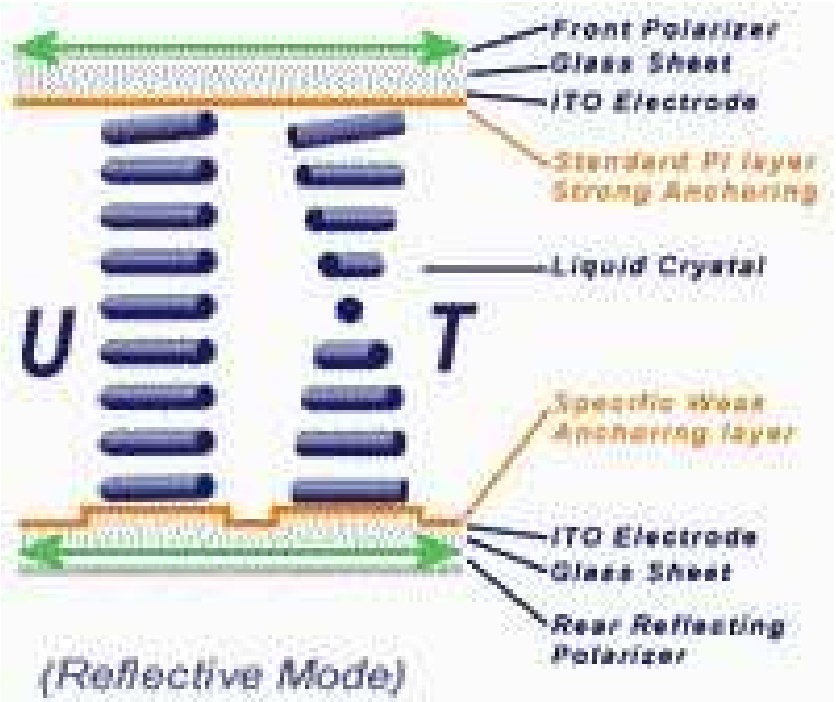
3. 液晶显示器件中的双稳态技术概览

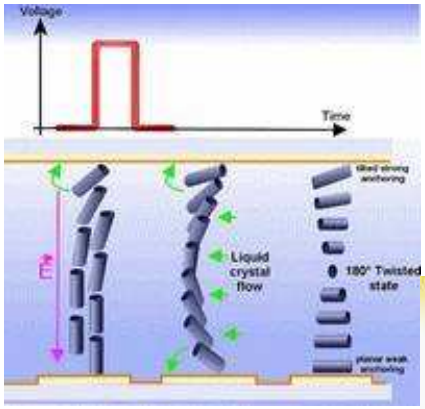
Table 1 ZBD epop™ product performance

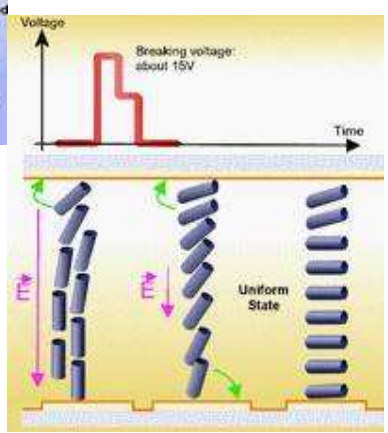
Property	Value
Image content	240 x 320
Display diagonal	102mm (4 inch)
Appearance	39% reflectivity 20: 1 contrast 160° Viewing angle (CR > 2)
Temperature range	0°C to 40°C
Storage temperatures	-20°C to + 70°C
Cell gap	5.3μm
Supply voltage	2.7V
Operating voltage	10V to 30V
Lifetime	> 1,000,000 updates > 10,000 hours at 90°C
Page update time	0.25 s at 20°C

顶点双稳态技术显示器样品

3. 液晶显示器件中的双稳态技术概览







扭曲向列型液晶的弱锚定双稳态技术

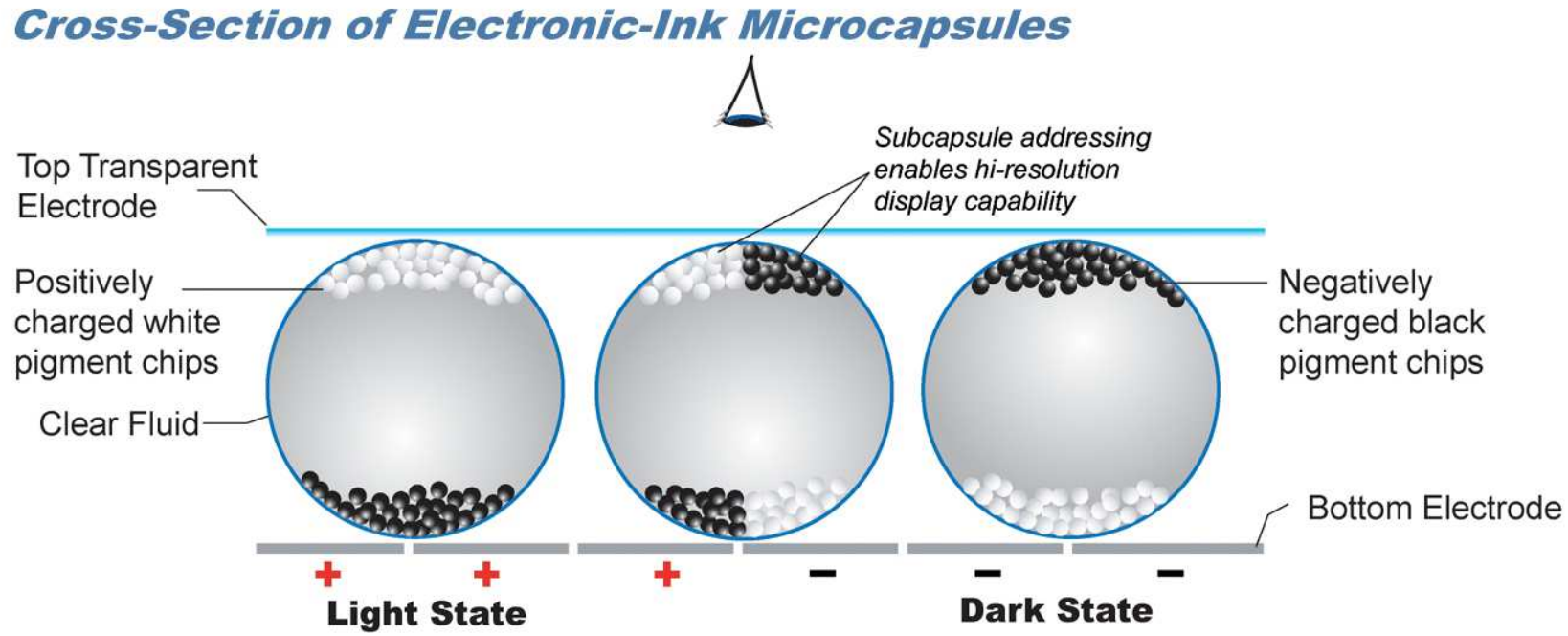
—— 法国 NEMOPITIC 公司

3. 液晶显示器件中的双稳态技术概览

A4 size displays - BD 500 - and new color displays - BD 1000 - have been developed following this process. A new plastic demonstrator is also planned in a near future.

NEMOPITIC 的样品：黑白与彩色显示器

4. 电泳与微机电双稳态技术概览



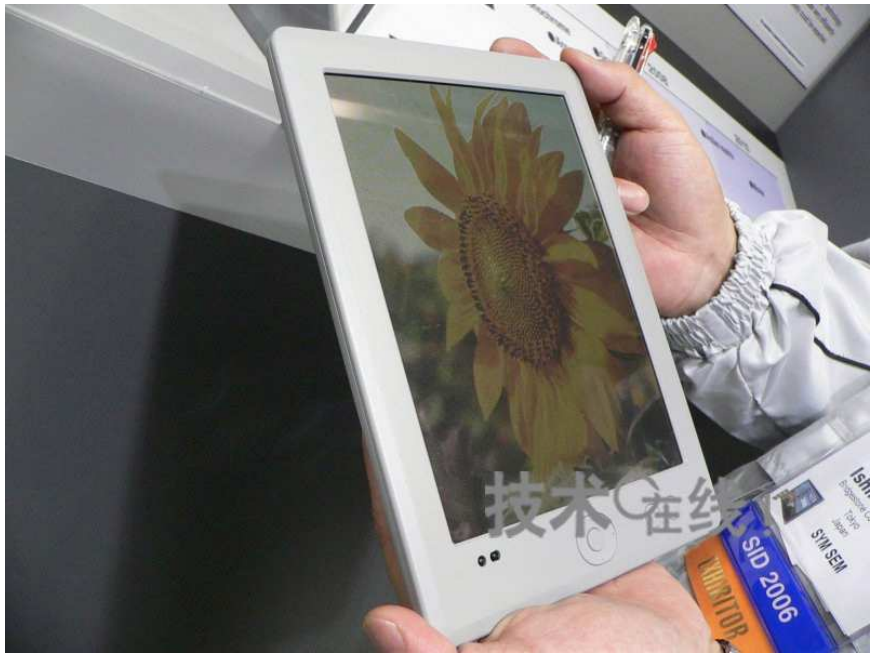
E-ink电子墨水技术原理：零电场双稳态

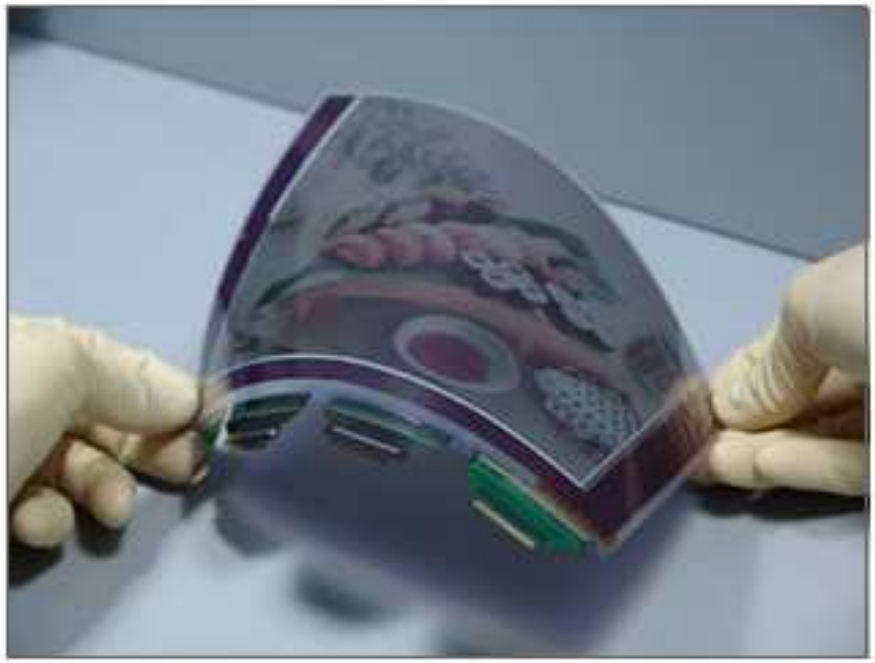
4. 电泳与微机电双稳态技术概览

索尼的E-Ink电子纸

LG.Philips Announces Color Flexible Display Using E-Ink Technology - 2007

4. 电泳与微机电双稳态技术概览

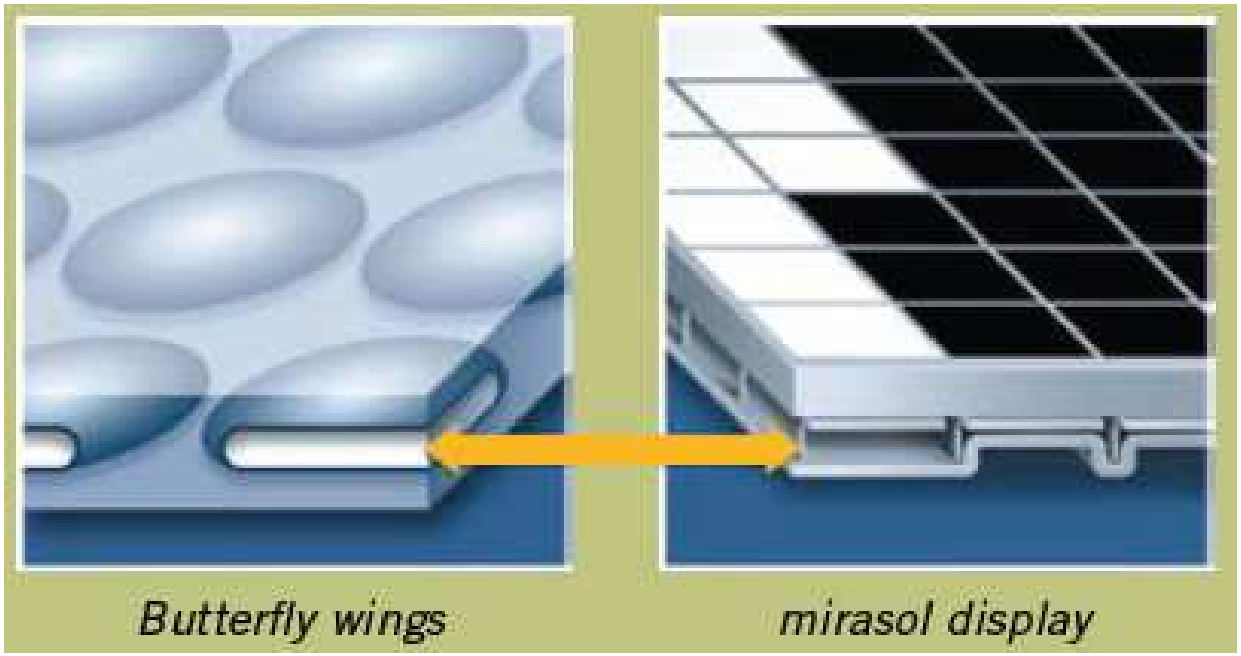




Thickness	0.29mm
Panel Size	200 ×150mm
Color	4096 colors

采用纳米固体流体的显示器

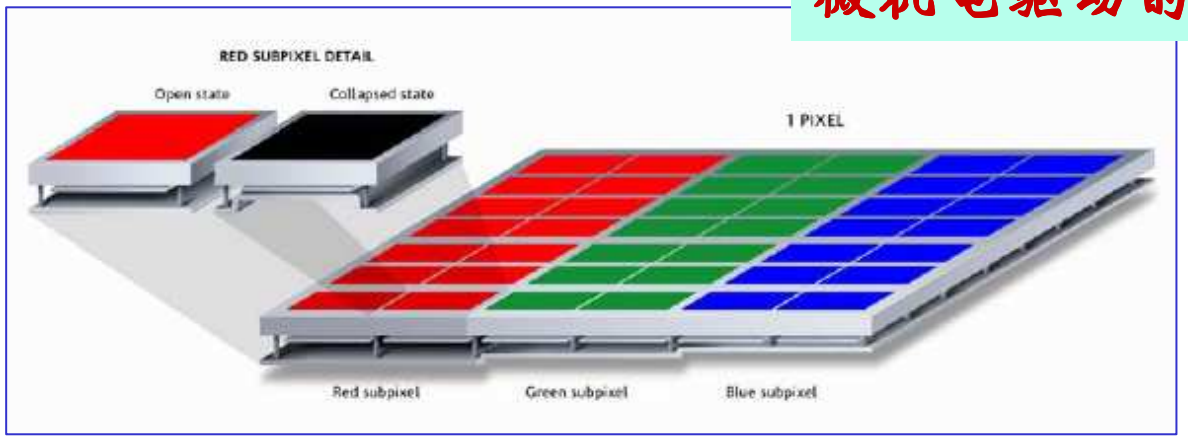
4. 电泳与微机电双稳态技术概览

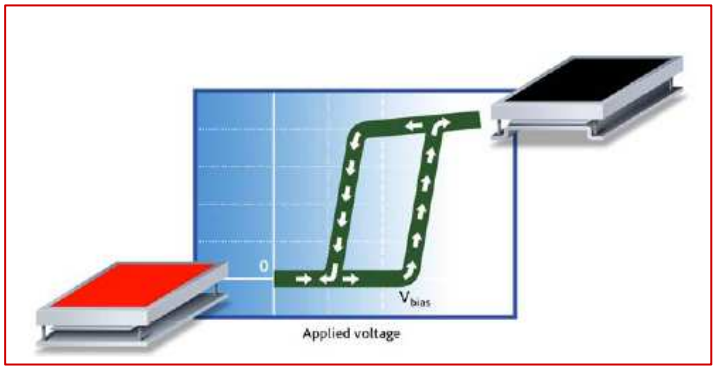


自然光干涉形成的美丽颜色

4. 电泳与微机电双稳态技术概览

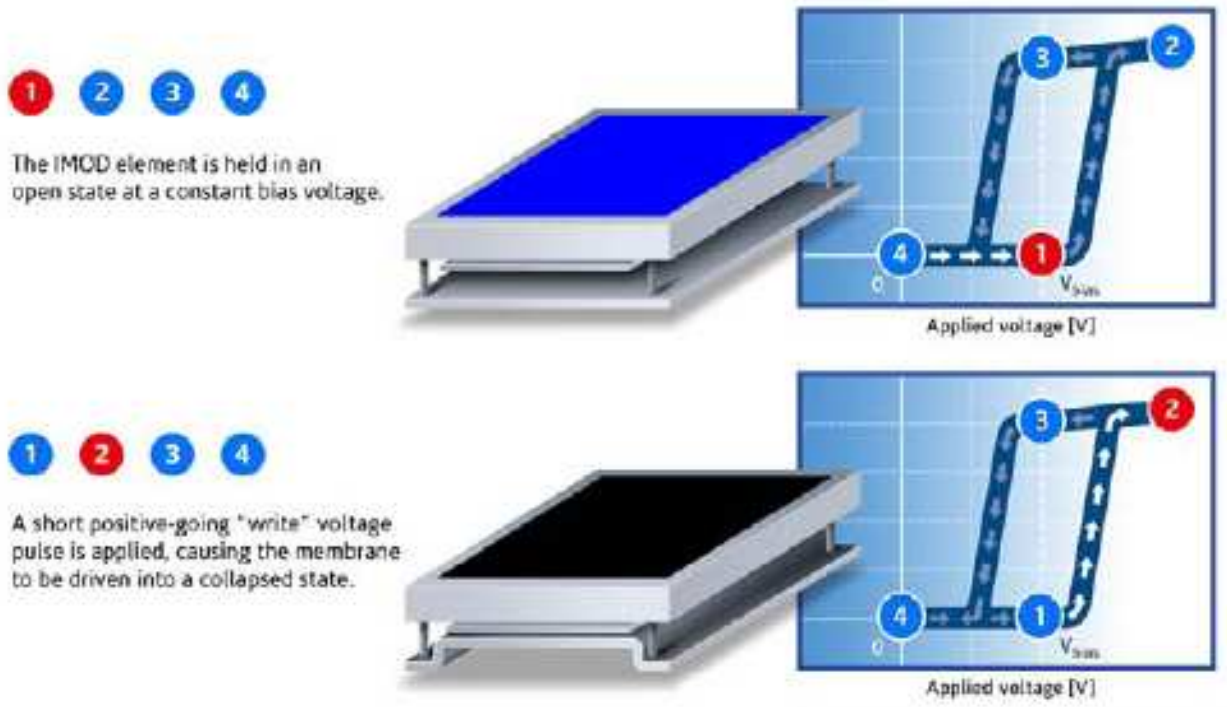
微机电驱动的光干涉单元





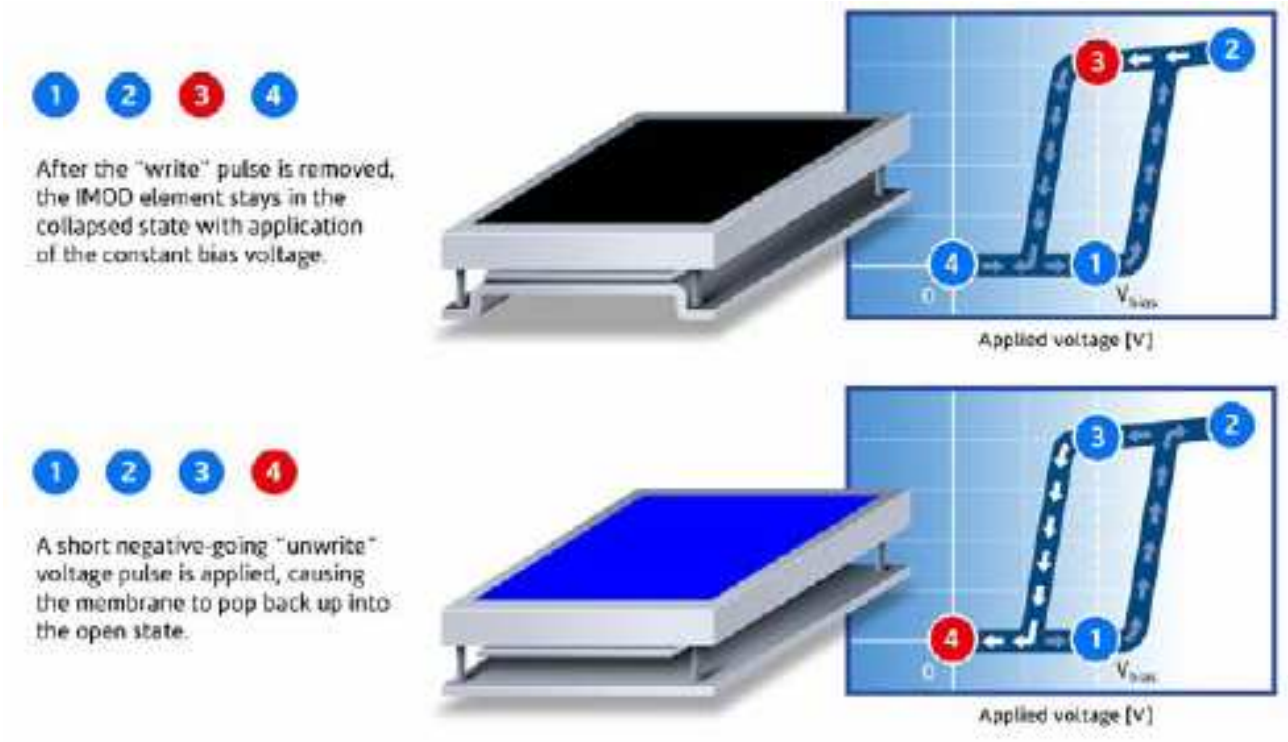
微机电驱动时的双稳态现象

4. 电泳与微机电双稳态技术概览



微机电双稳态驱动过程（1）

4. 电泳与微机电双稳态技术概览

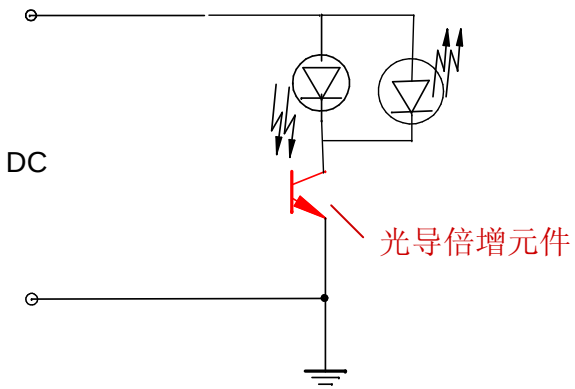


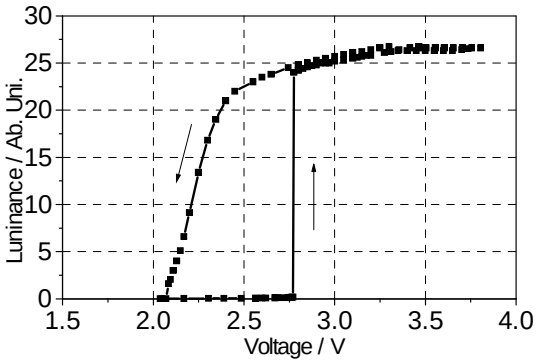
微机电双稳态驱动过程（2）

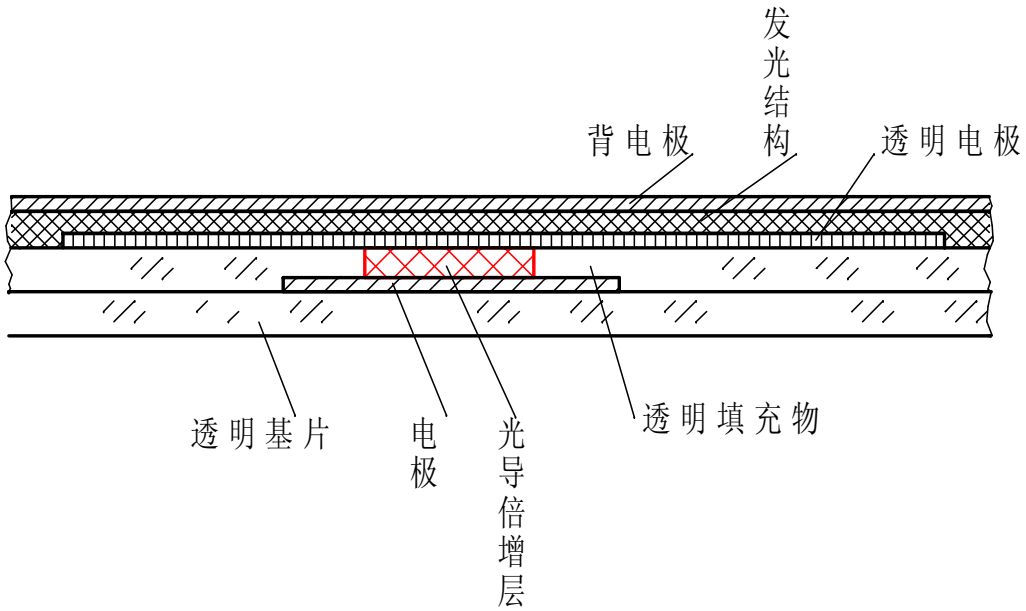
4. 电泳与微机电双稳态技术概览

微机电双稳态显示器与传统显示器比较

5. OLED双稳态器件的结构与原理



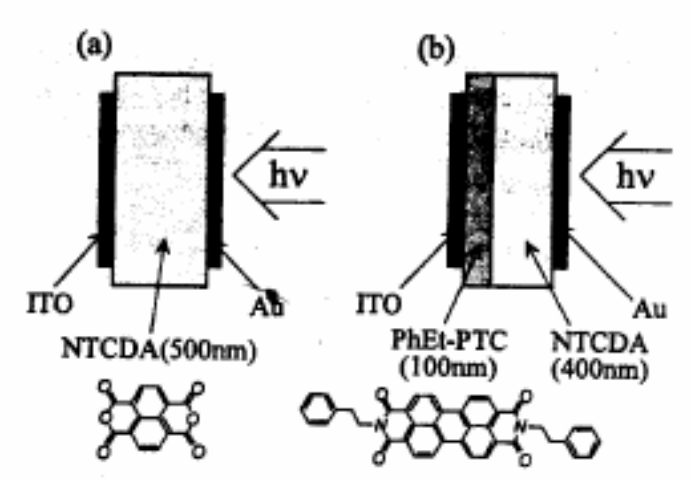




LED双稳态的构建与原理（方案一）

5. OLED双稳态器件的结构与原理

By Nakayama etc. from Osaka university



multiplication rate of 1.7×10^5-fold

花衍生物的光电倍增现象
是LED双稳态的关键

5. OLED双稳态器件的结构与原理

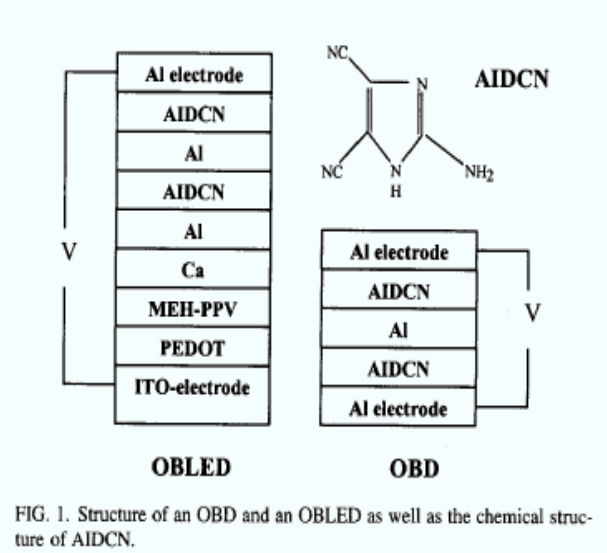
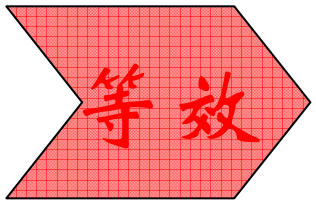
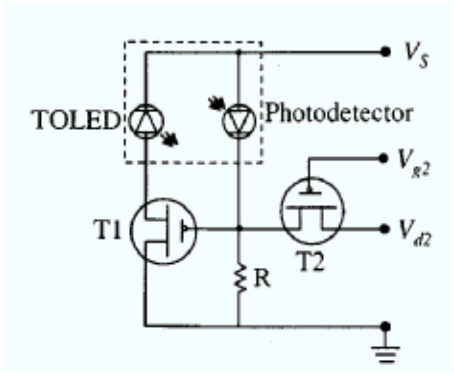
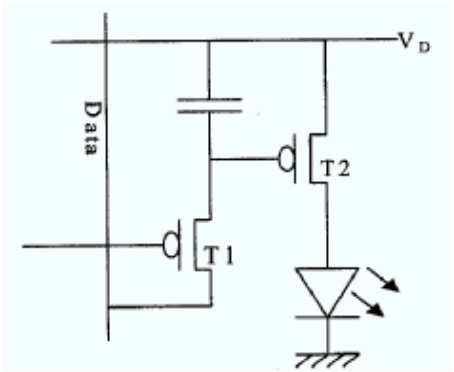
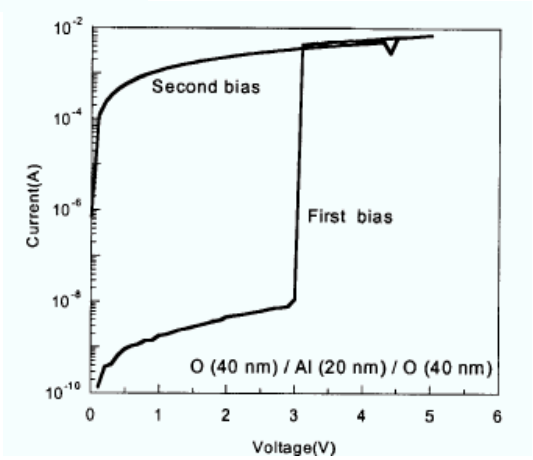


FIG. 1. Structure of an OBD and an OBLED as well as the chemical structure of AIDCN.









LED双稳态的构建与原理（方案二）

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6. FED双稳态器件的结构与实现

IT'S POSSIBLE TO CREATE:

Bistable FED ?

回答是：当然可以。

事实上，我们正在就双稳态场致发射器件申请一项专利，届时我们将公开Bistable FED 的结构以及试验数据。

平板显示中的双稳态技术：现状与进展

谢谢！

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