



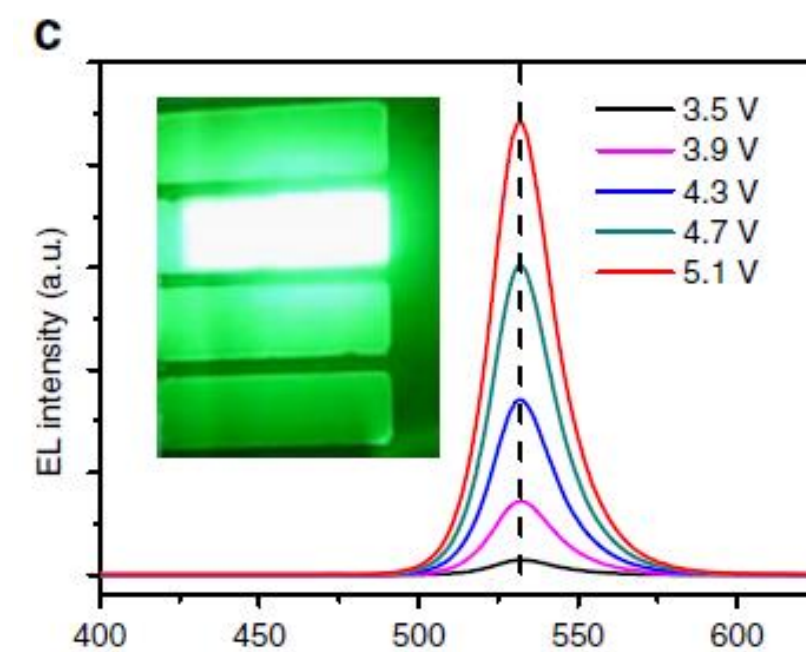
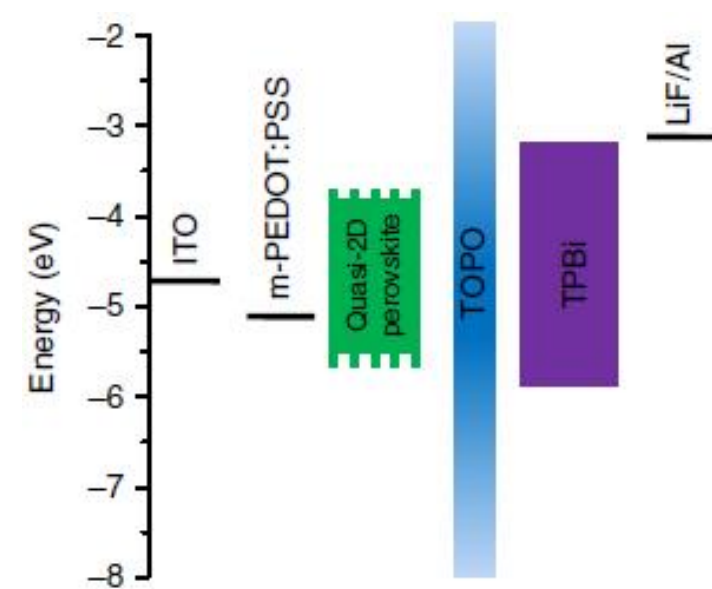
НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ  
УНИВЕРСИТЕТ



# УСТРОЙСТВА НА ОСНОВЕ ГИБРИДНЫХ МЕТАЛЛООРГАНИЧЕСКИХ ПЕРОВСКИТОВ И ИХ ПРИНЦИП РАБОТЫ

Подготовил: Сектаров Эдуард

Троицк, 2021



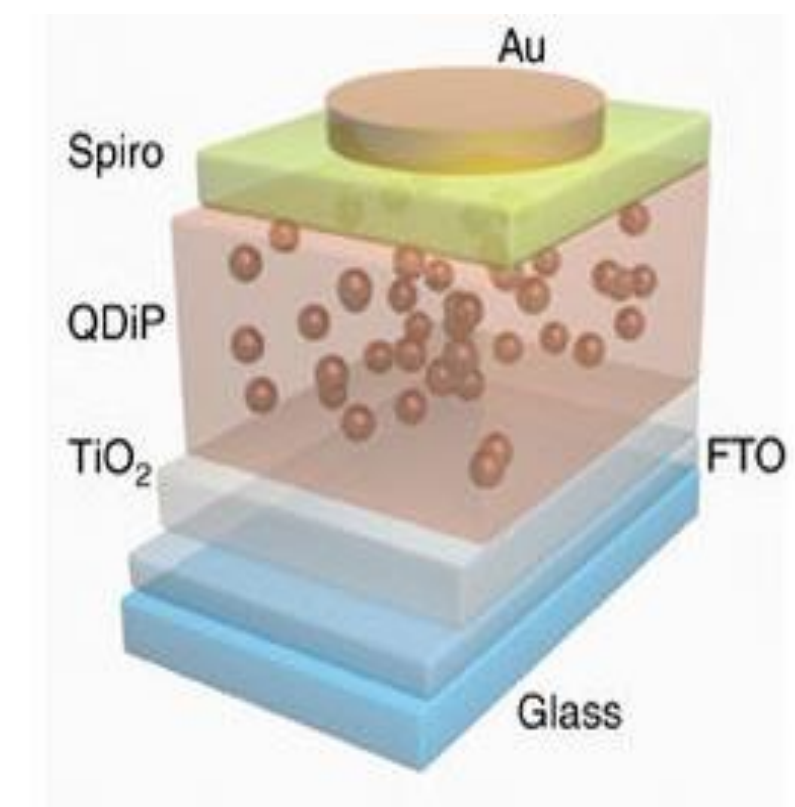
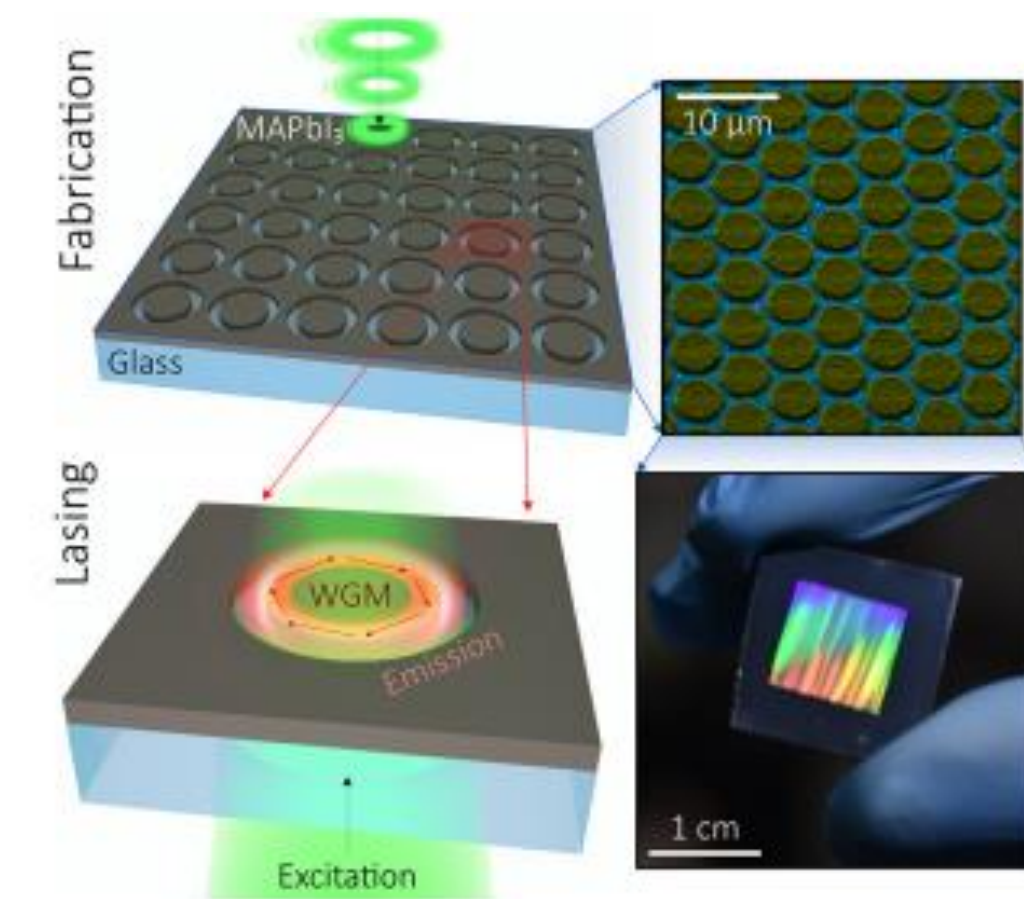
### Направления применения гибридных металлорганических перовскитов

Светодиоды

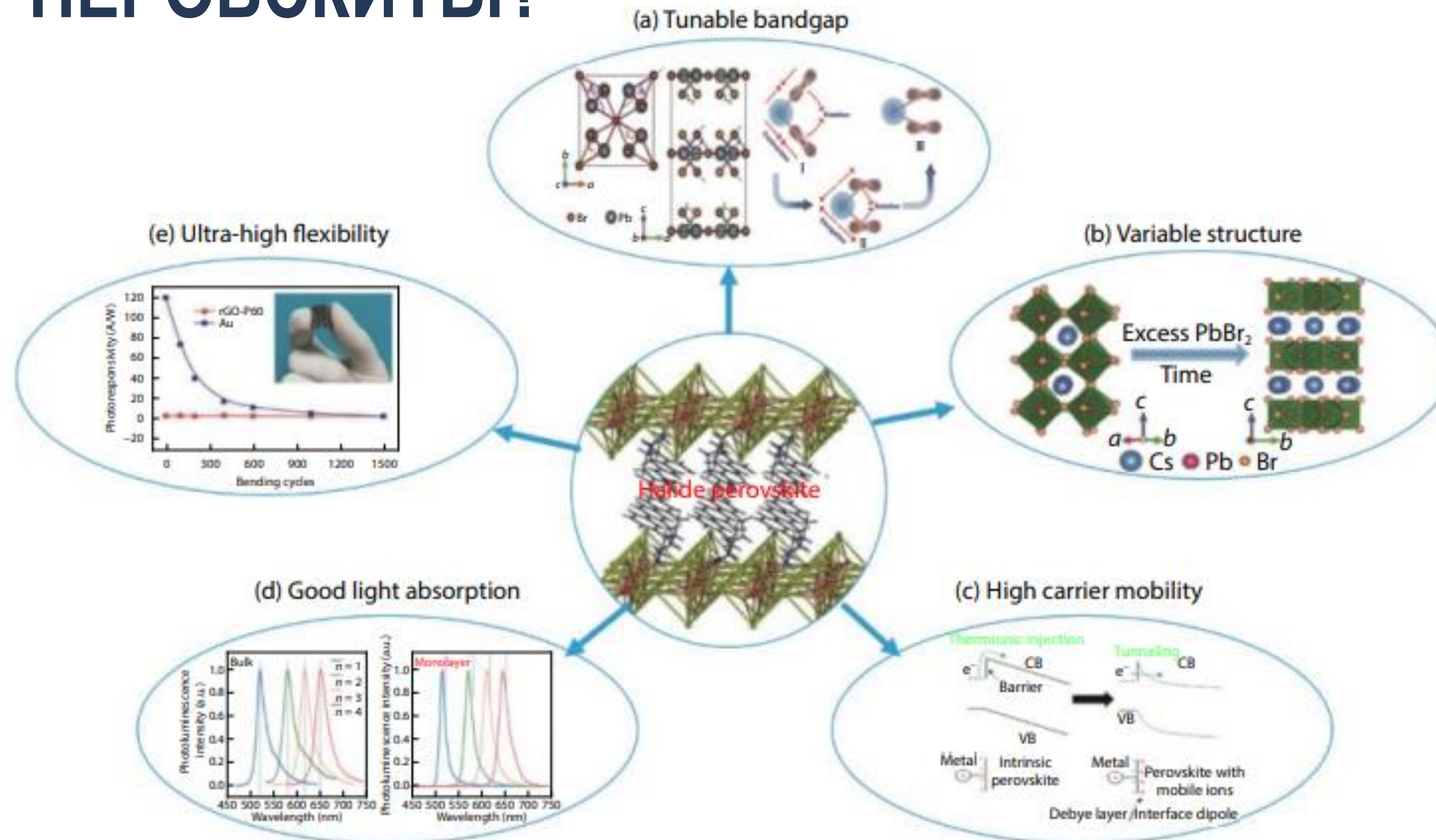
Лазеры

Фотодетекторы

Другое

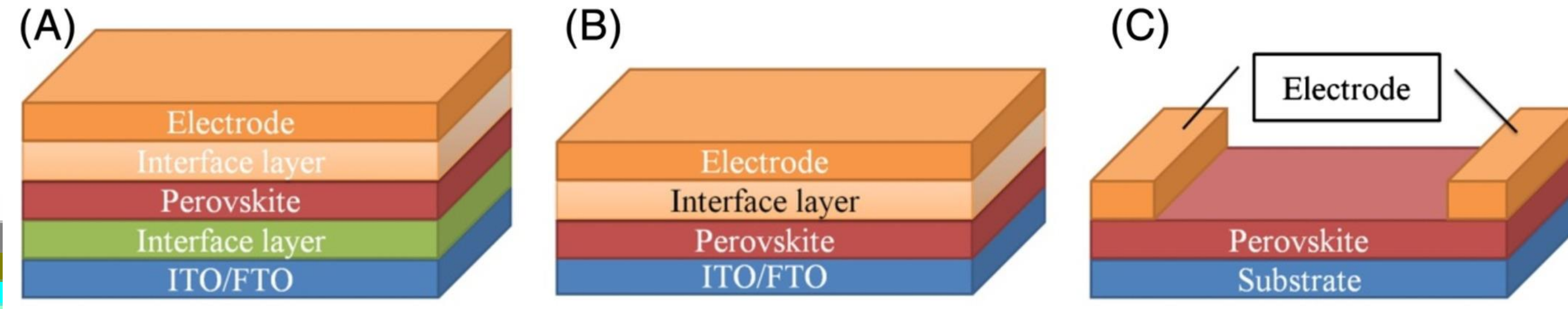
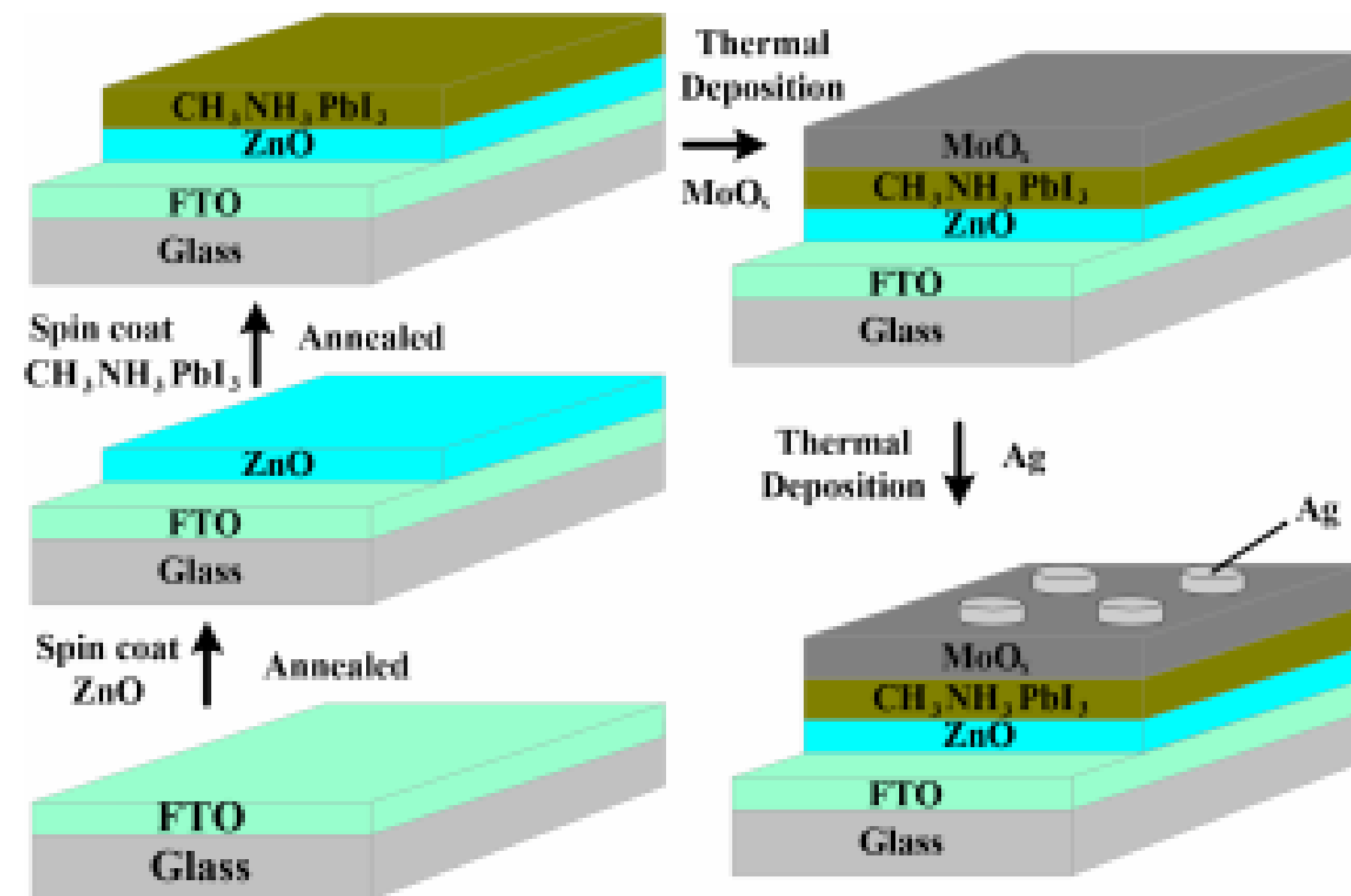


# ПОЧЕМУ ПЕРОВСКИТЫ?



ВИДЕО ПРО  
ПЕРОВСКИТЫ

# ФОТОДЕТЕКТОРЫ НА ОСНОВЕ ГИБРИДНЫХ ПЕРОВСКИТОВ



Vertical type

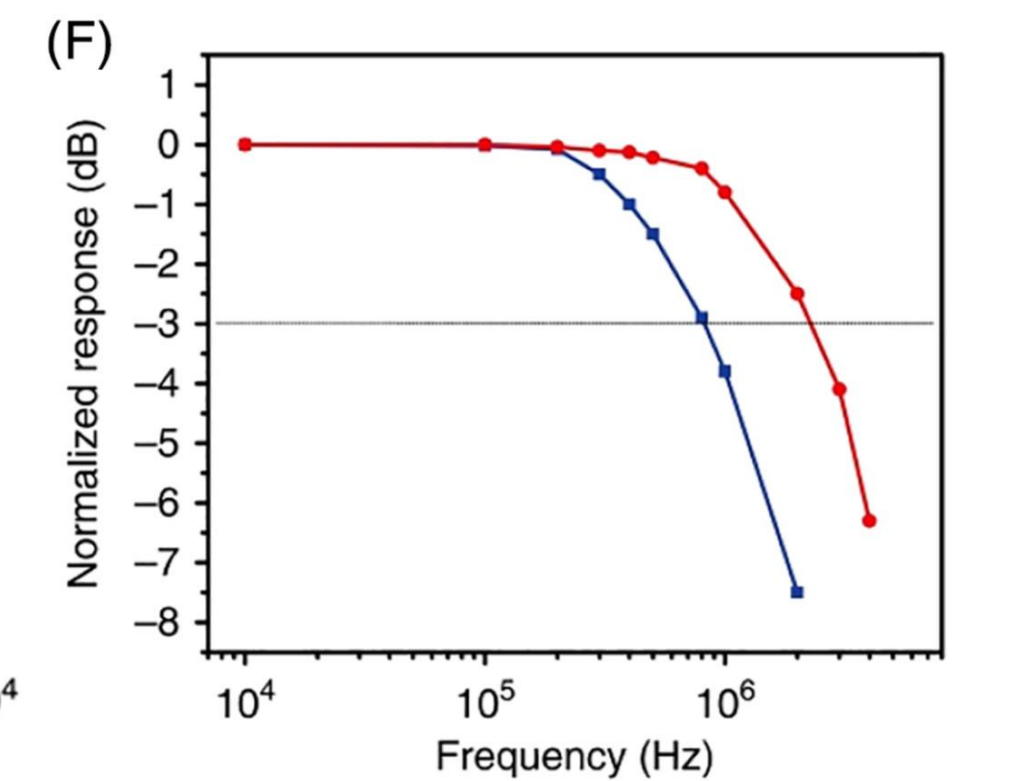
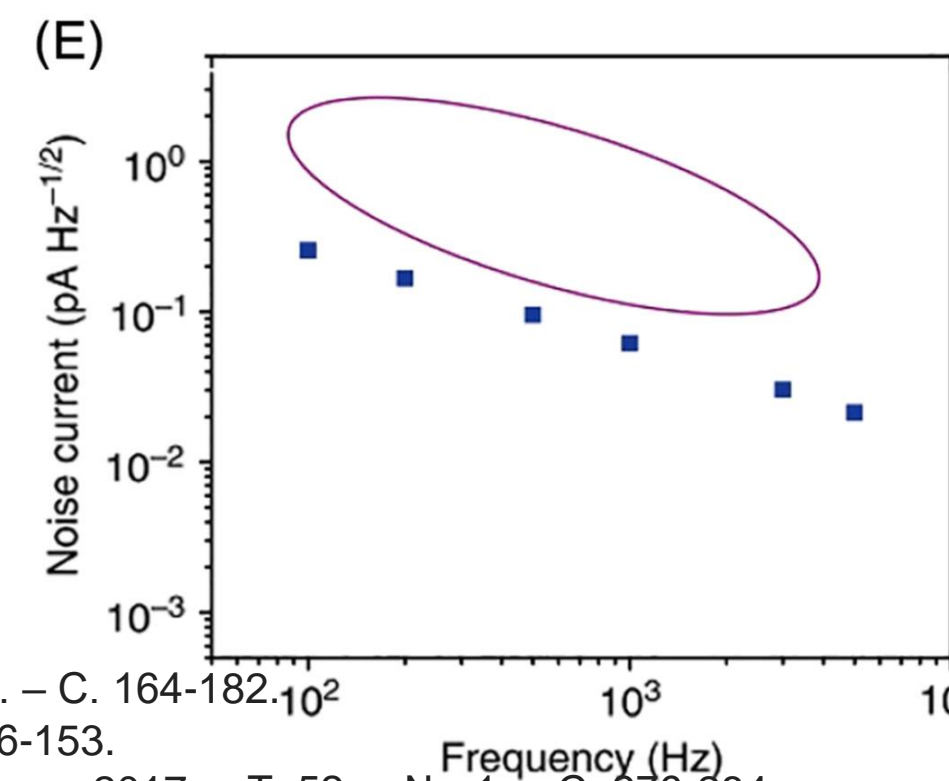
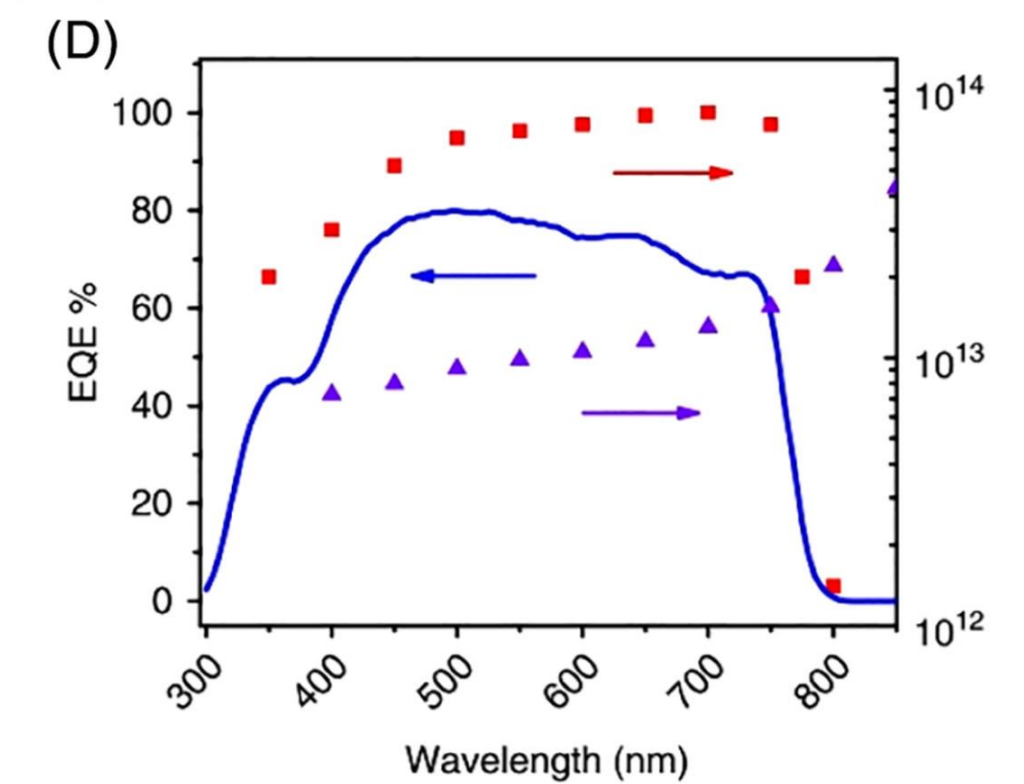
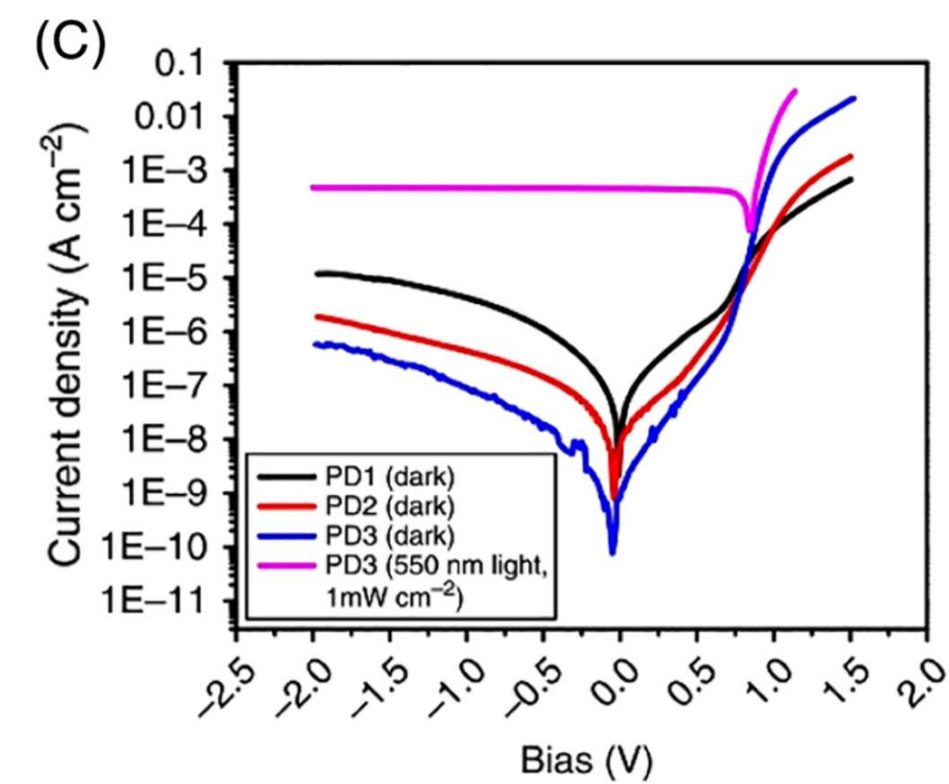
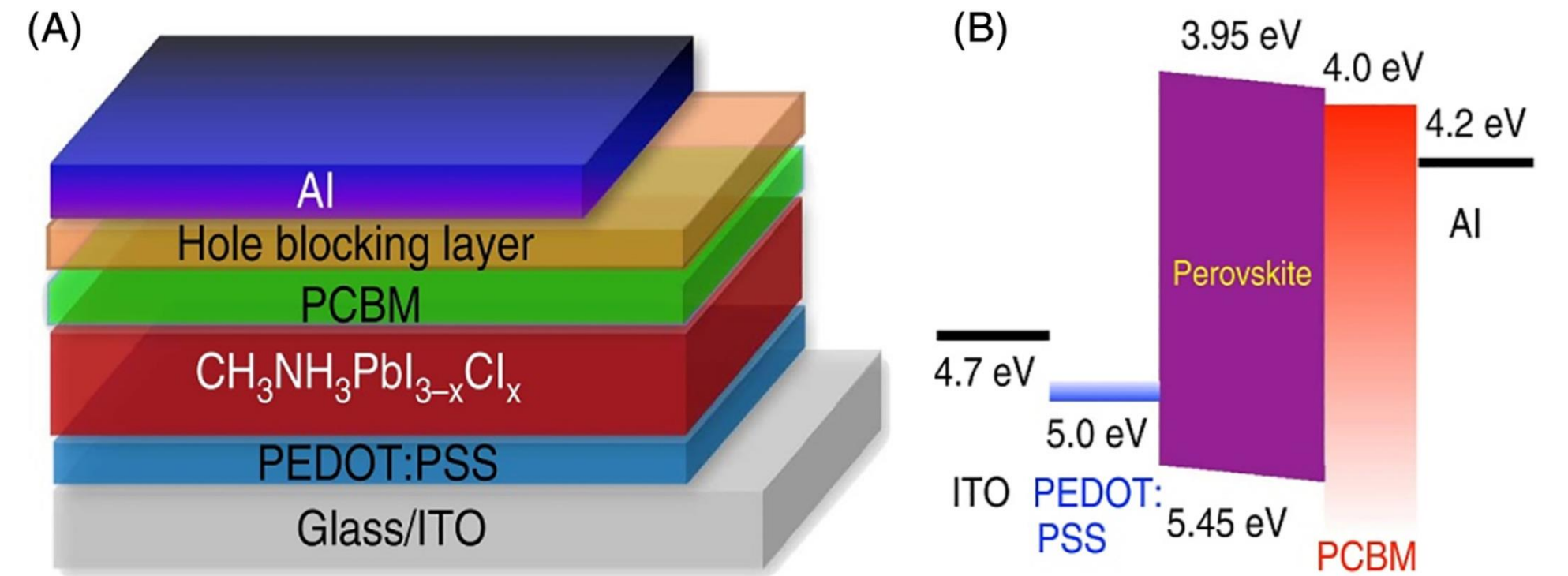
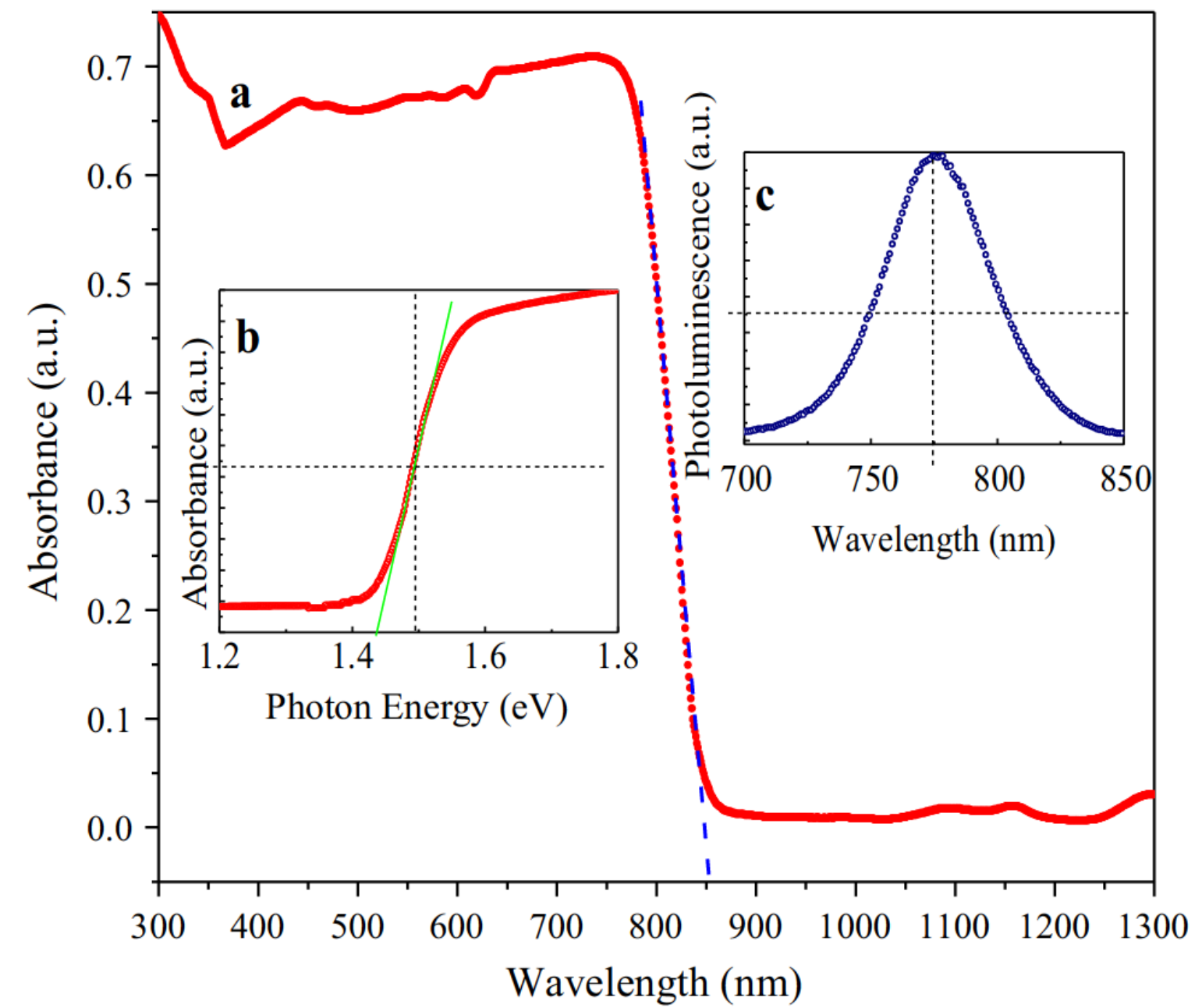
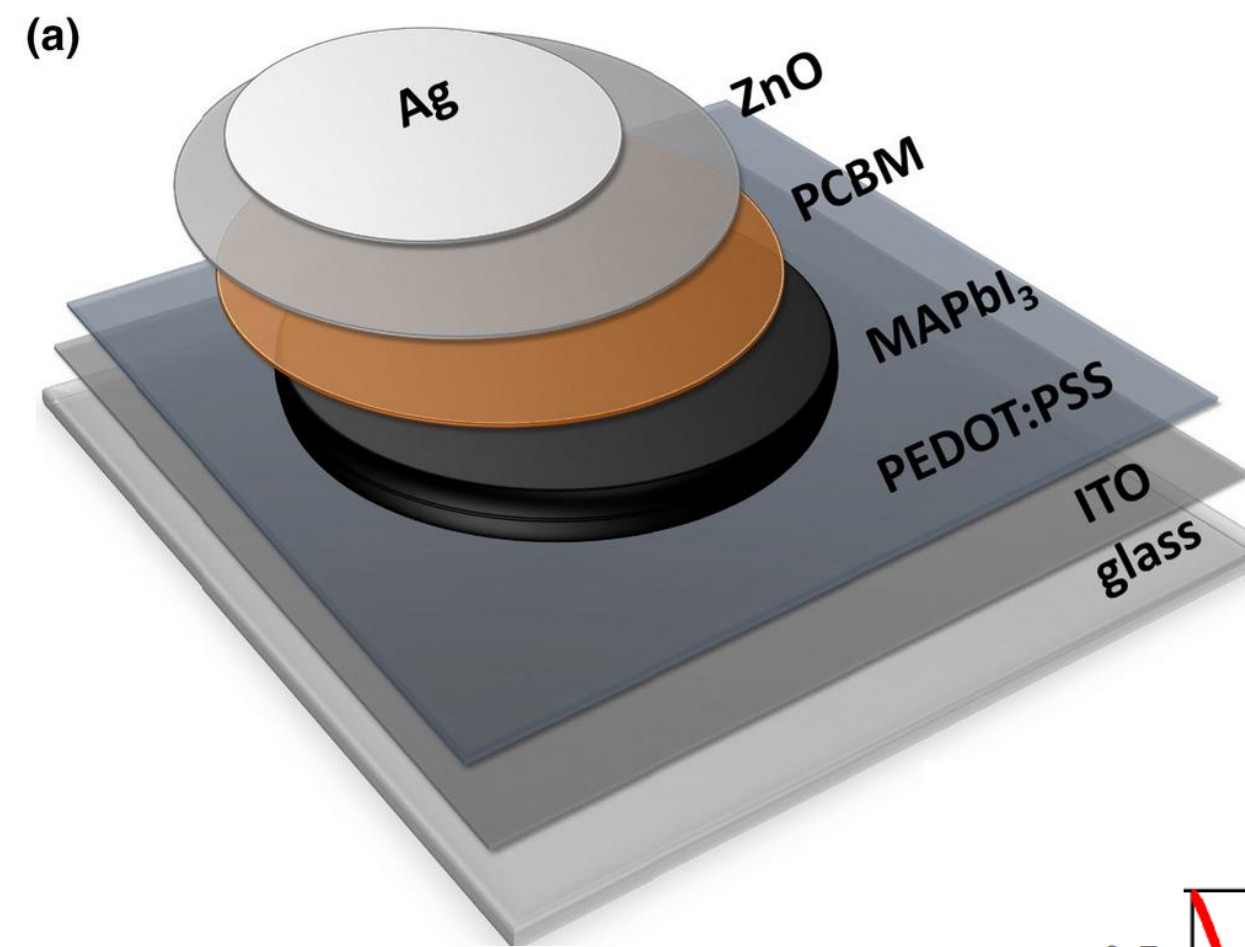
Lateral type

## Photovoltaic

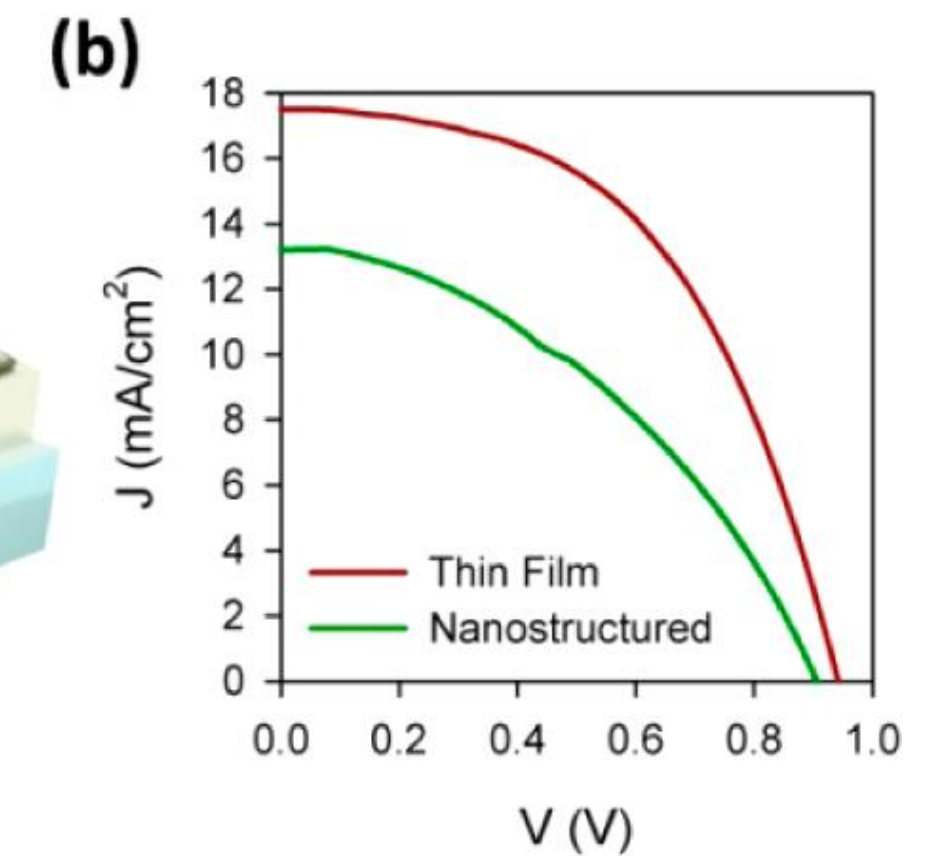
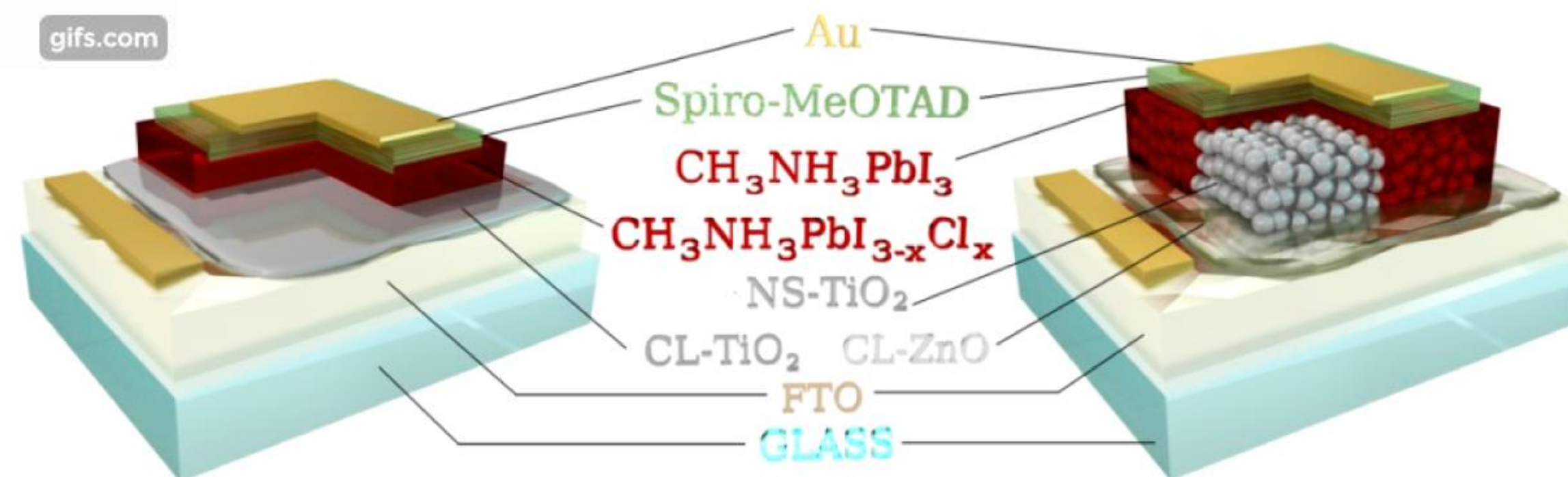
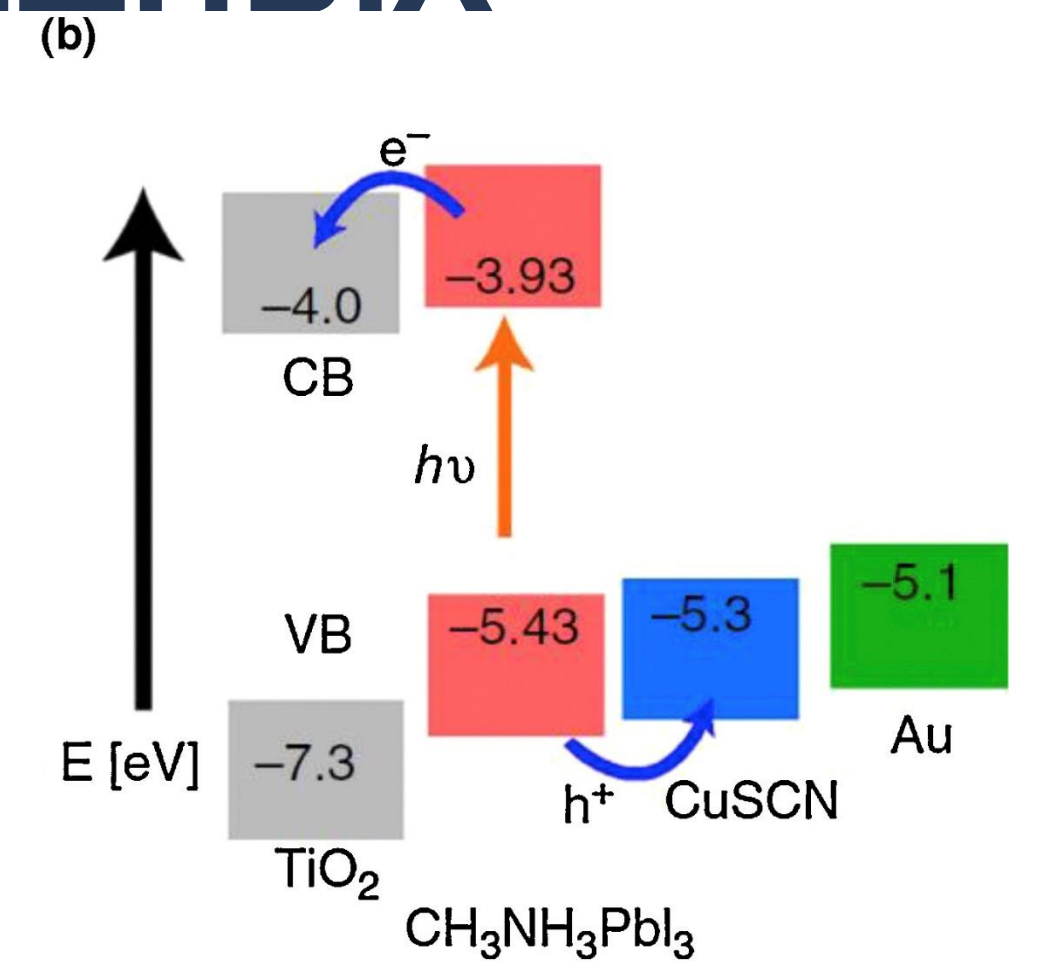
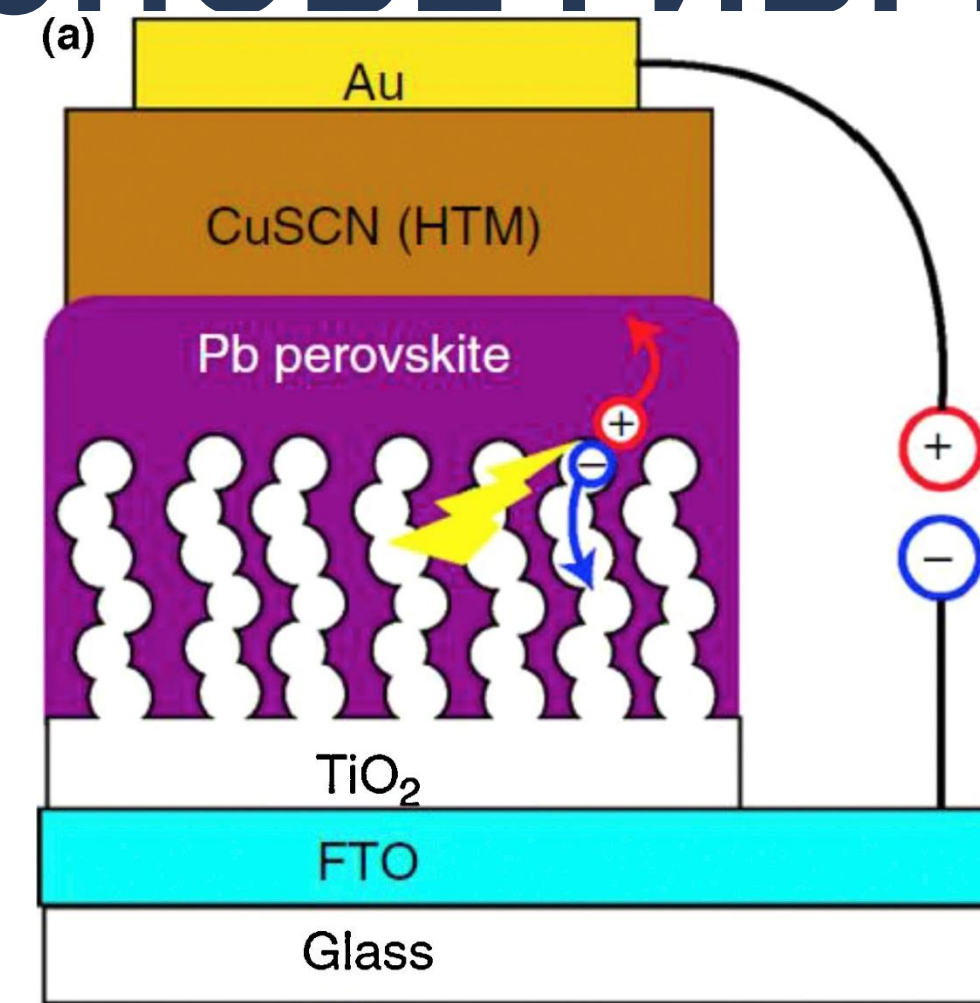
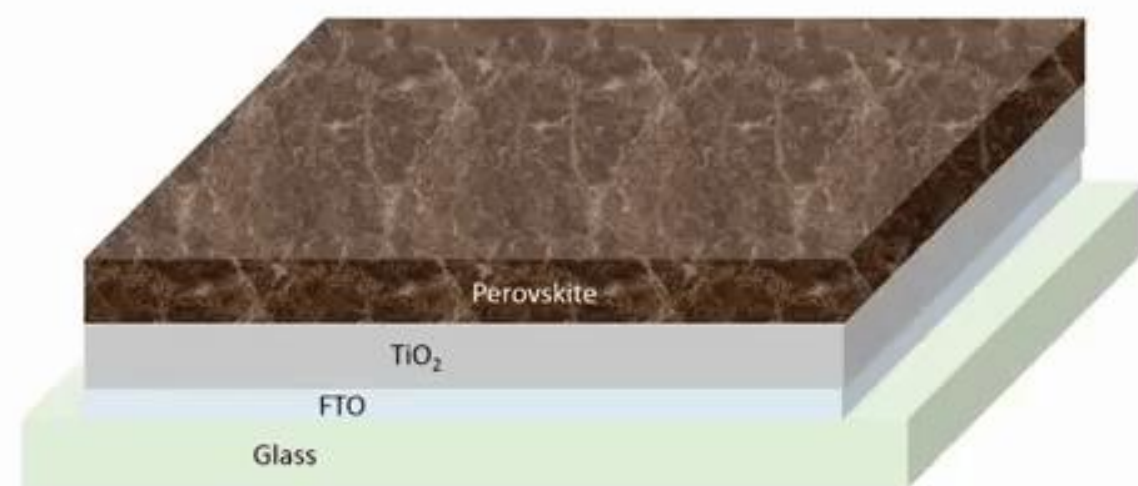
Low photocurrent  
(photogenerated carriers)  
EQE ≤ 100%  
Low responsivity  
**Low dark current**  
**Large linear dynamic range**  
**Short response time**

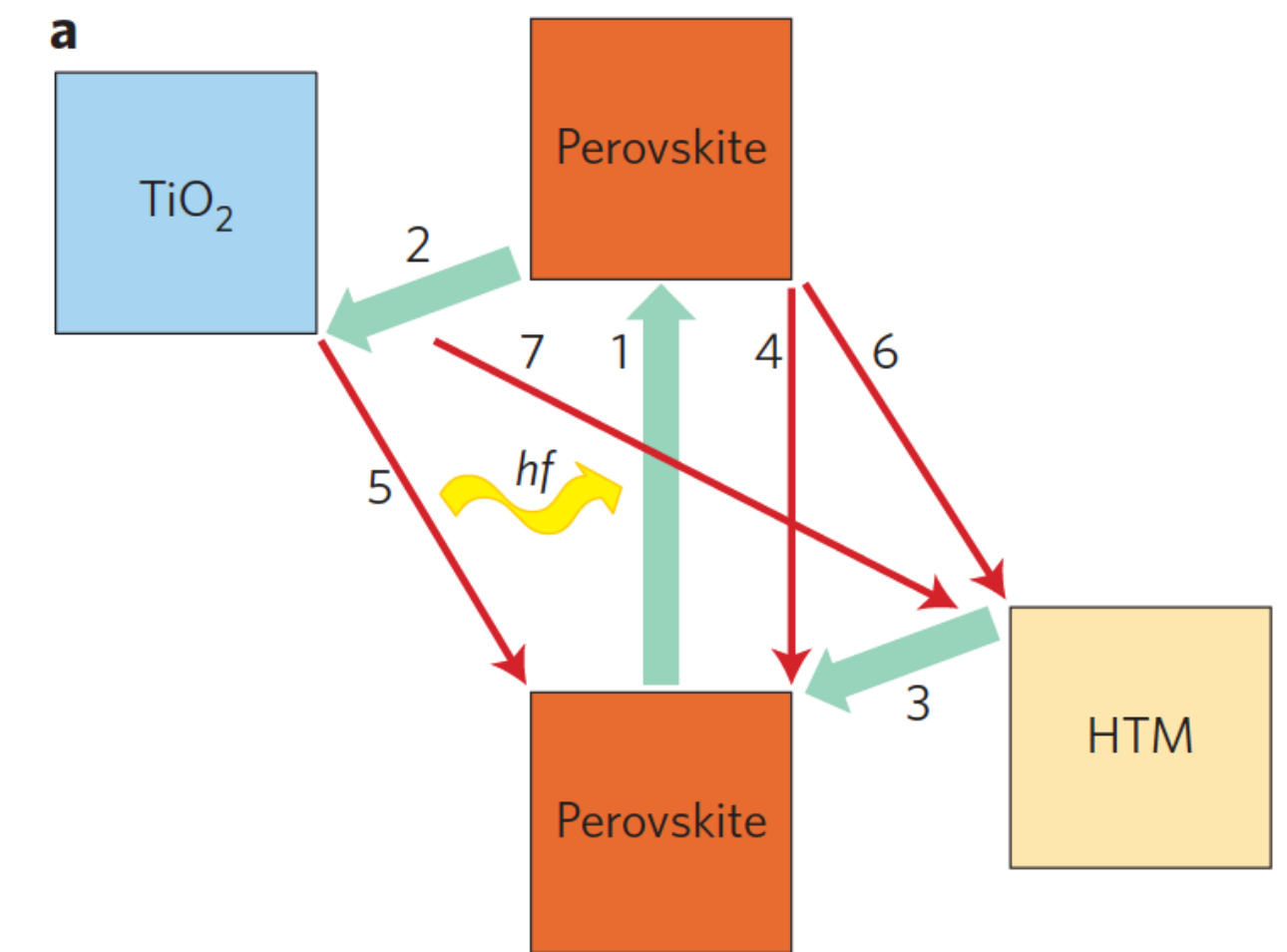
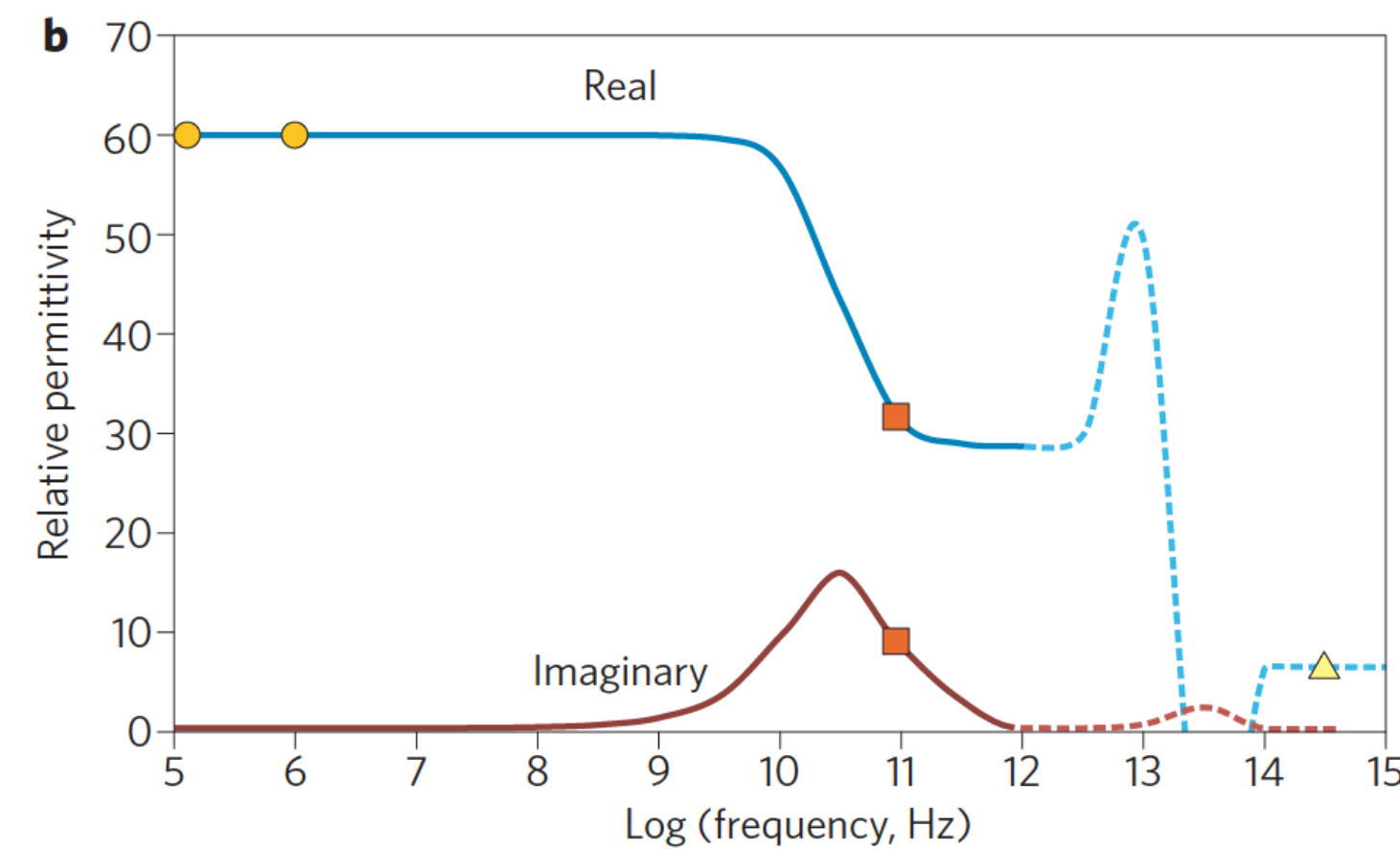
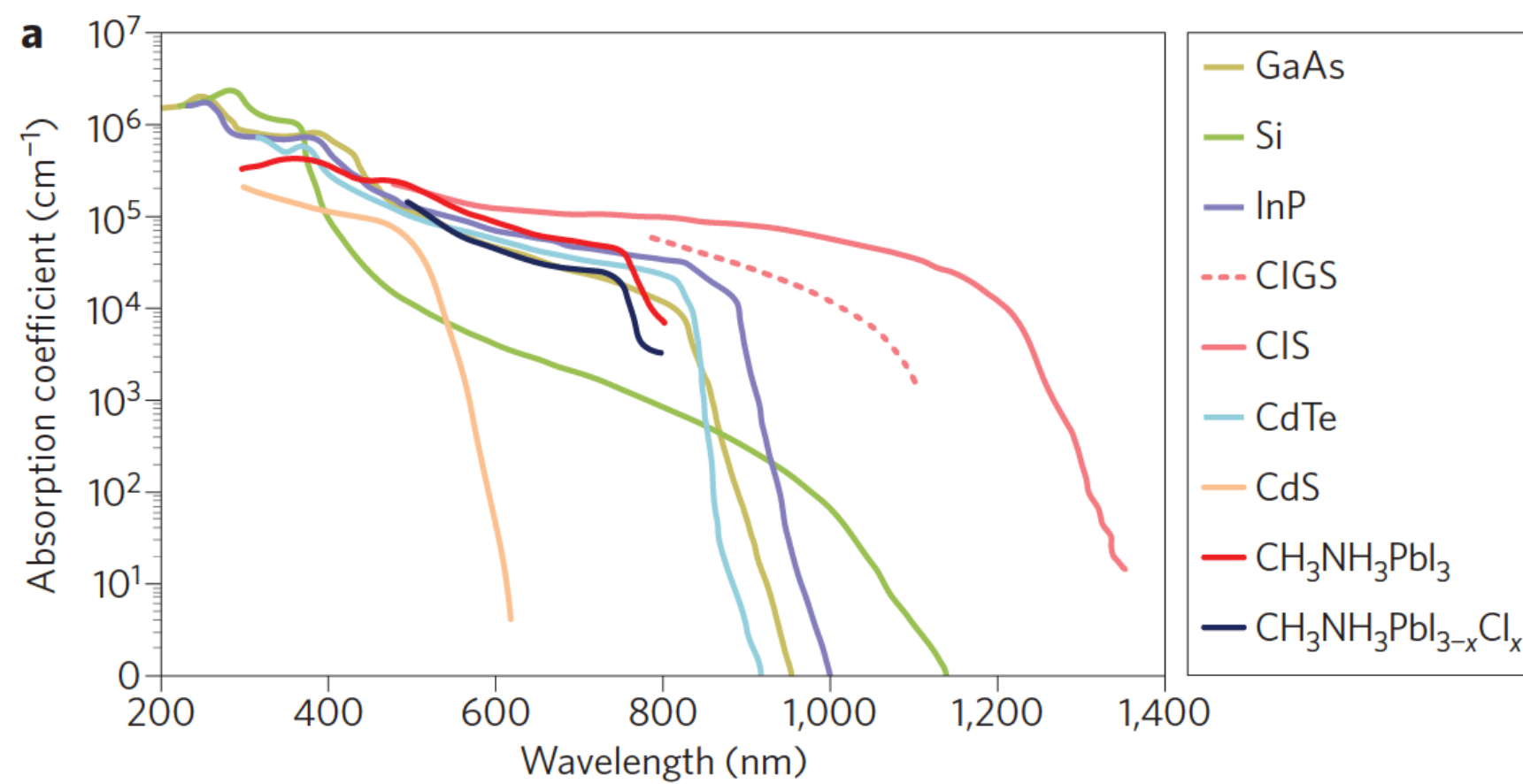
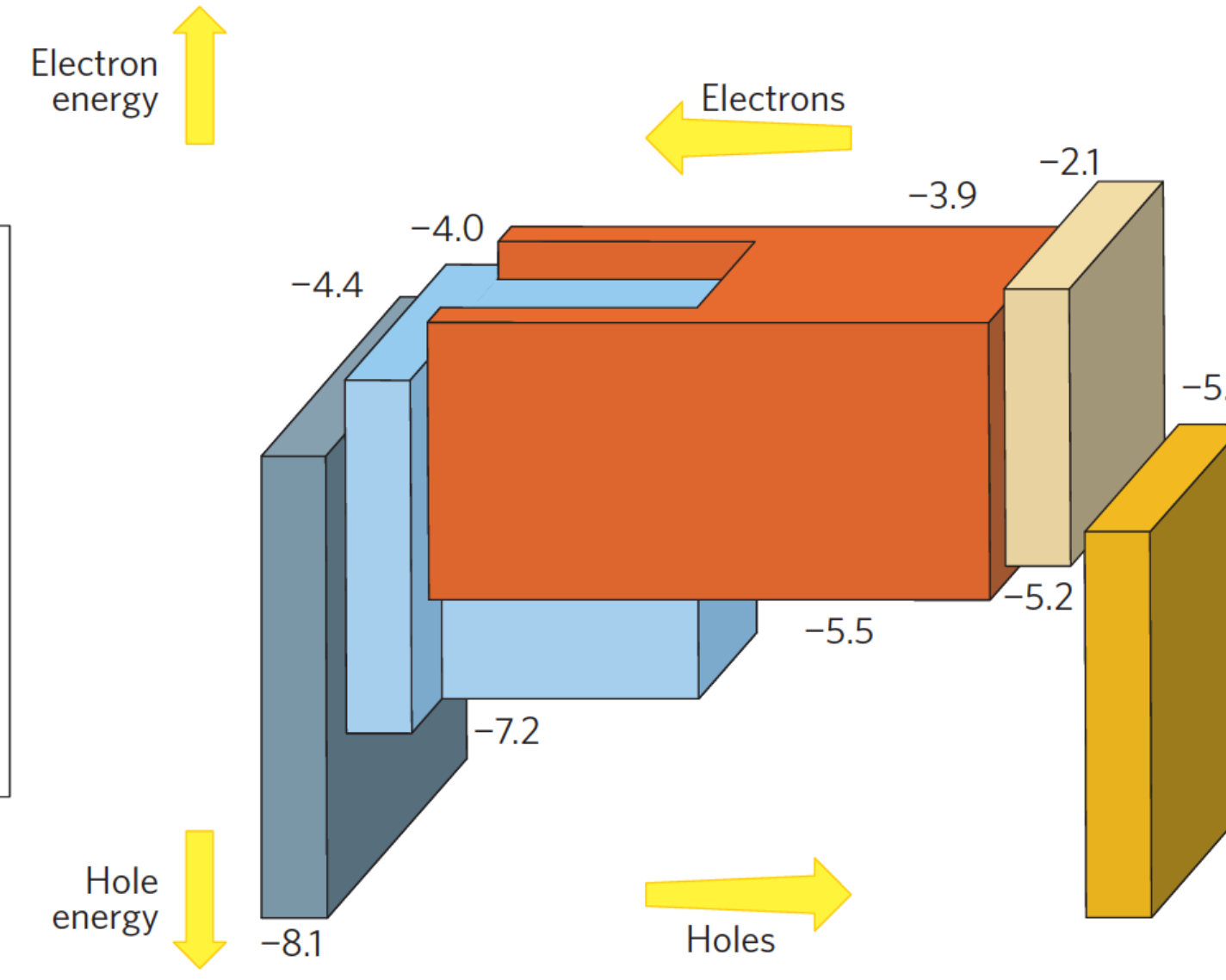
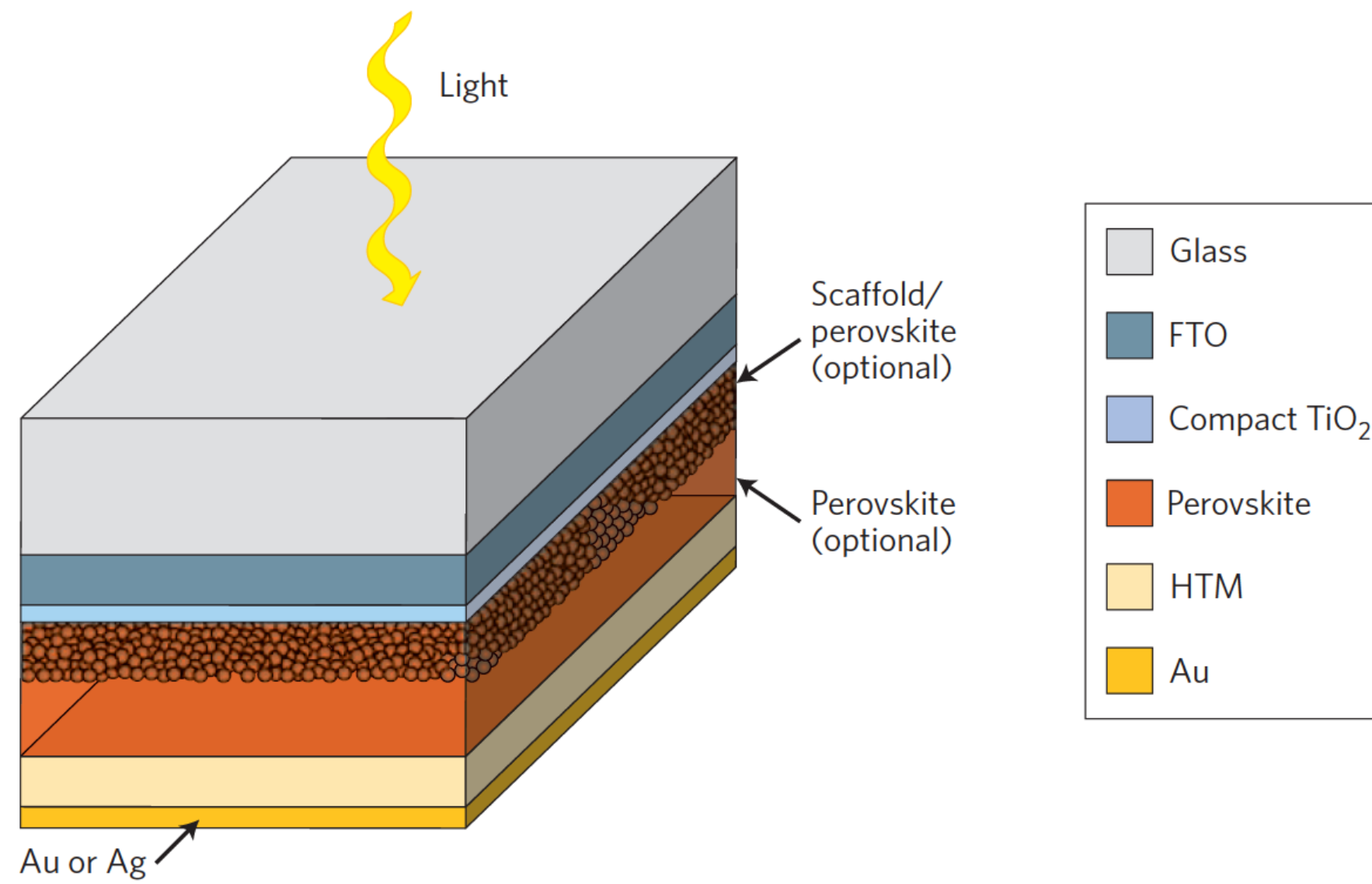
## Photoconductor

**High photocurrent**  
(photogenerated carriers + injected carriers)  
**EQE greater than 100% is possible**  
**High responsivity**  
High dark current  
Small linear dynamic range  
Long response time

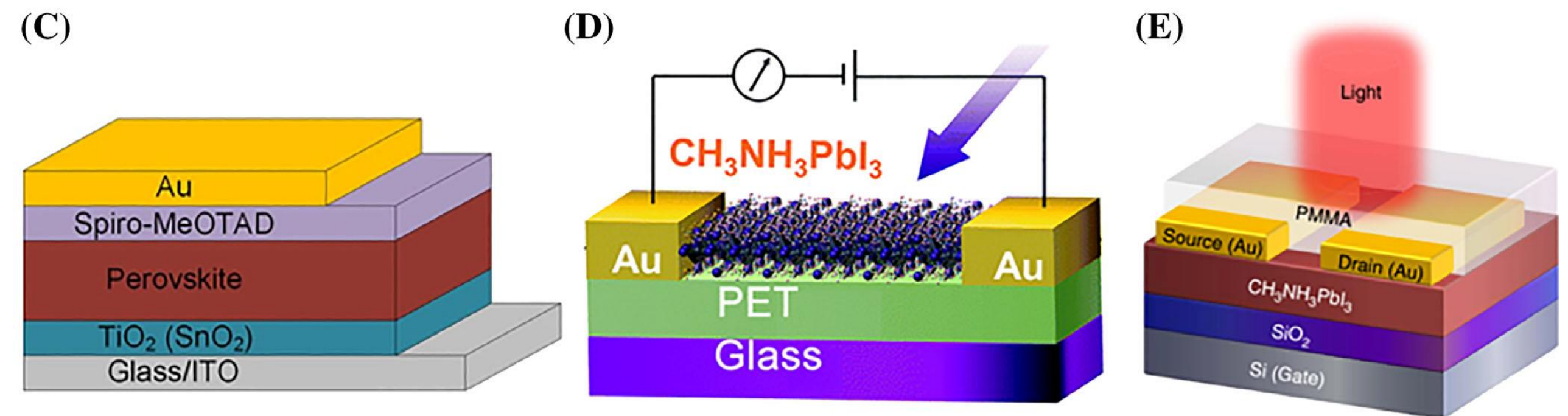
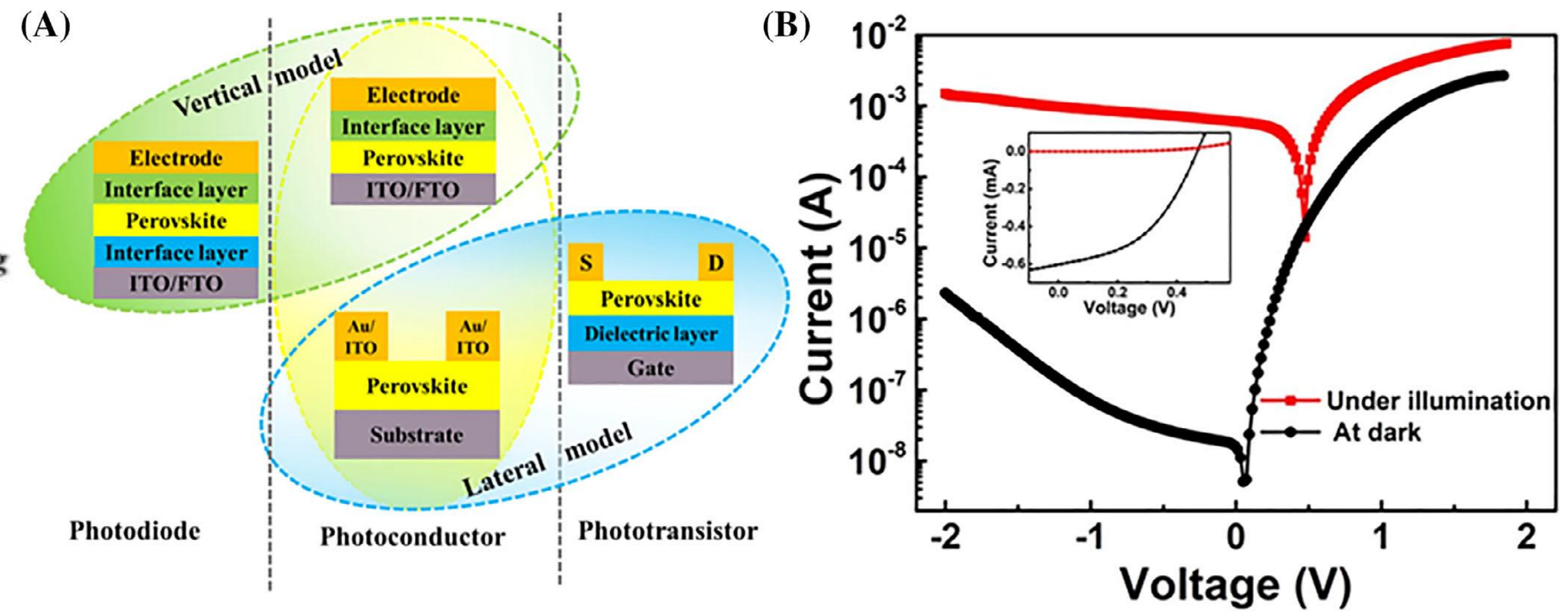
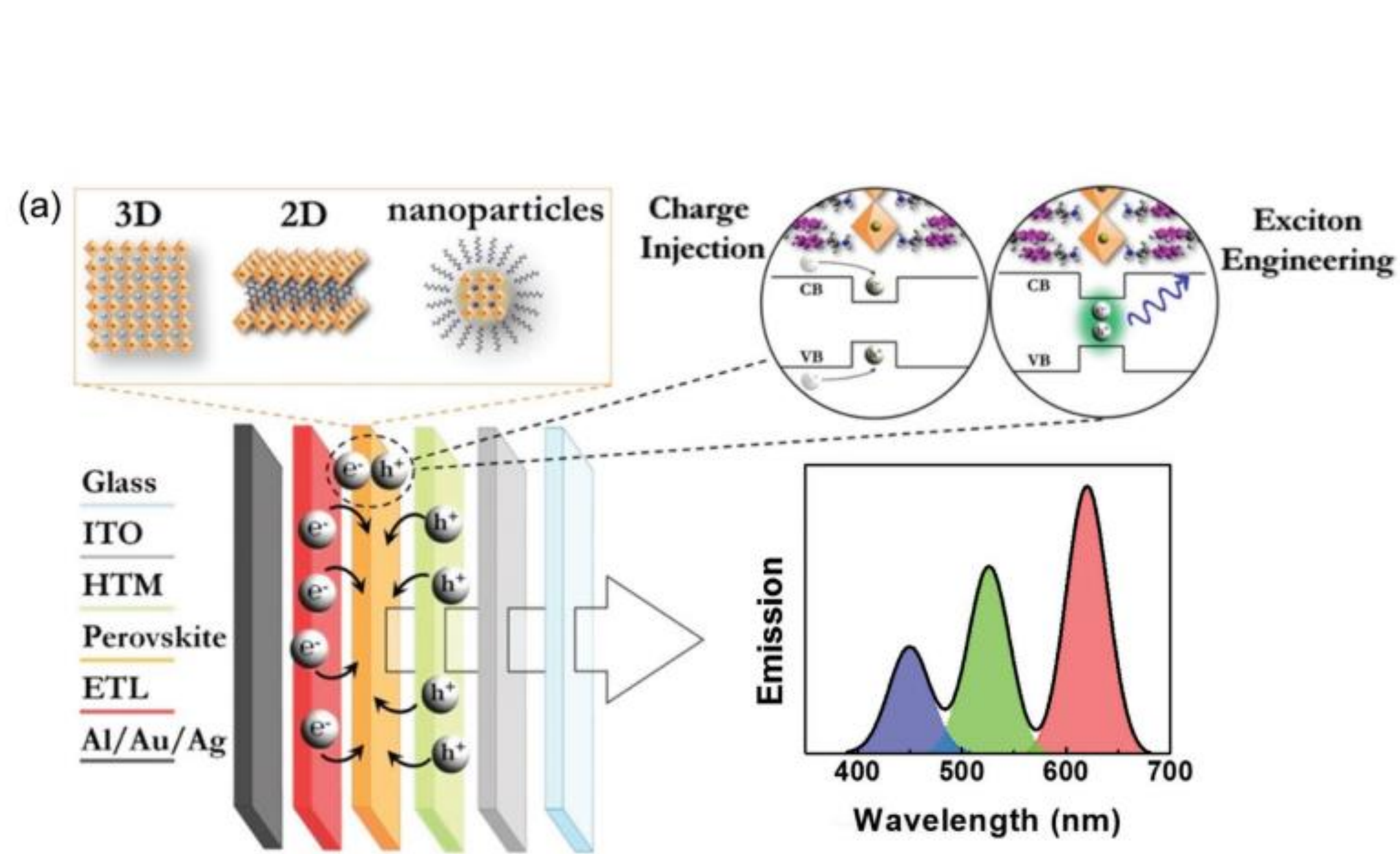


# СОЛНЕЧНЫЕ ЭЛЕМЕНТЫ НА ОСНОВЕ ГИБРИДНЫХ ПЕРОВСКИТОВ

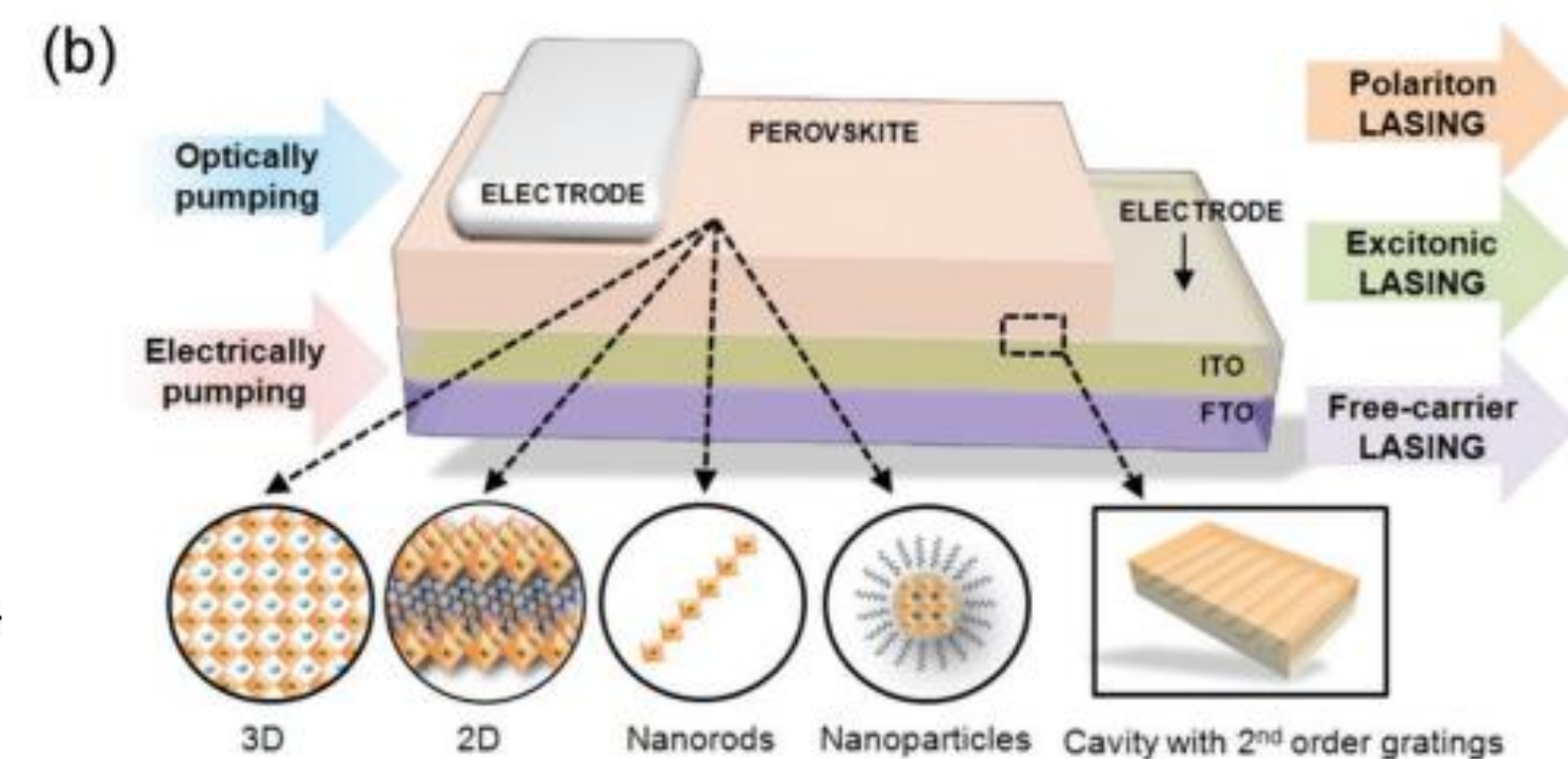
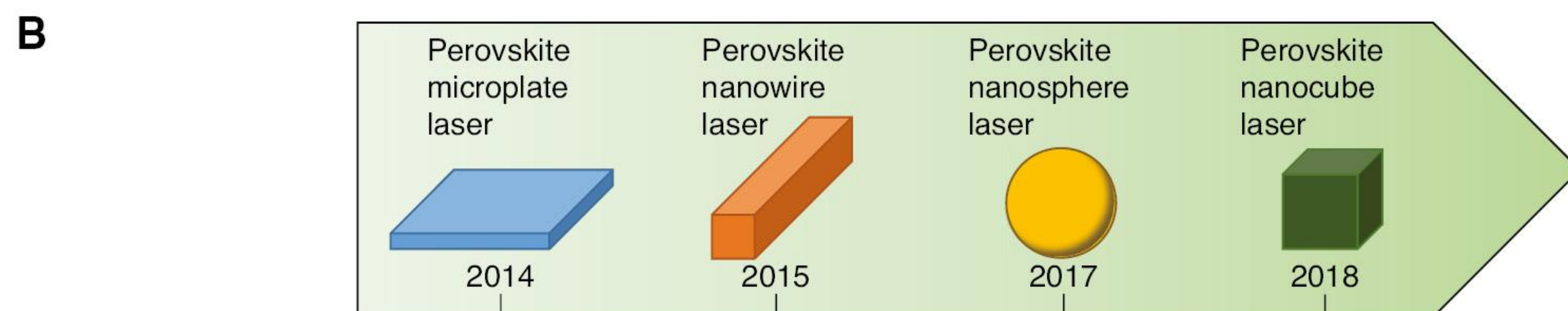
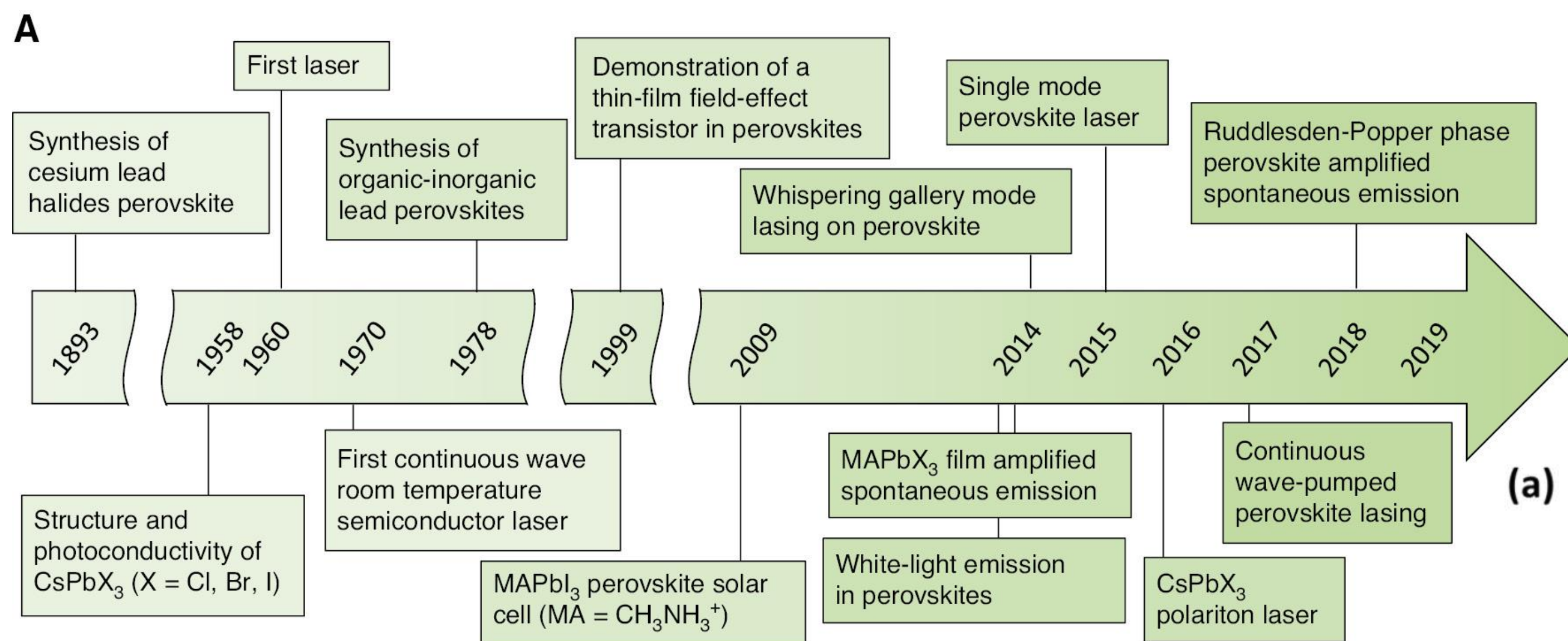








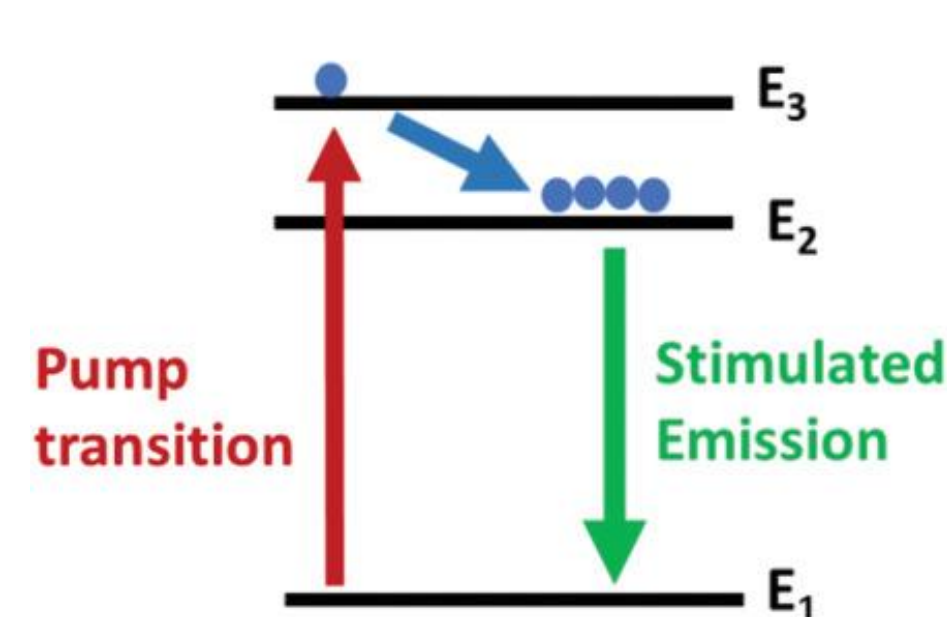
# ЛАЗЕРЫ НА ОСНОВЕ ГИБРИДНЫХ ПЕРОВСКИТОВ



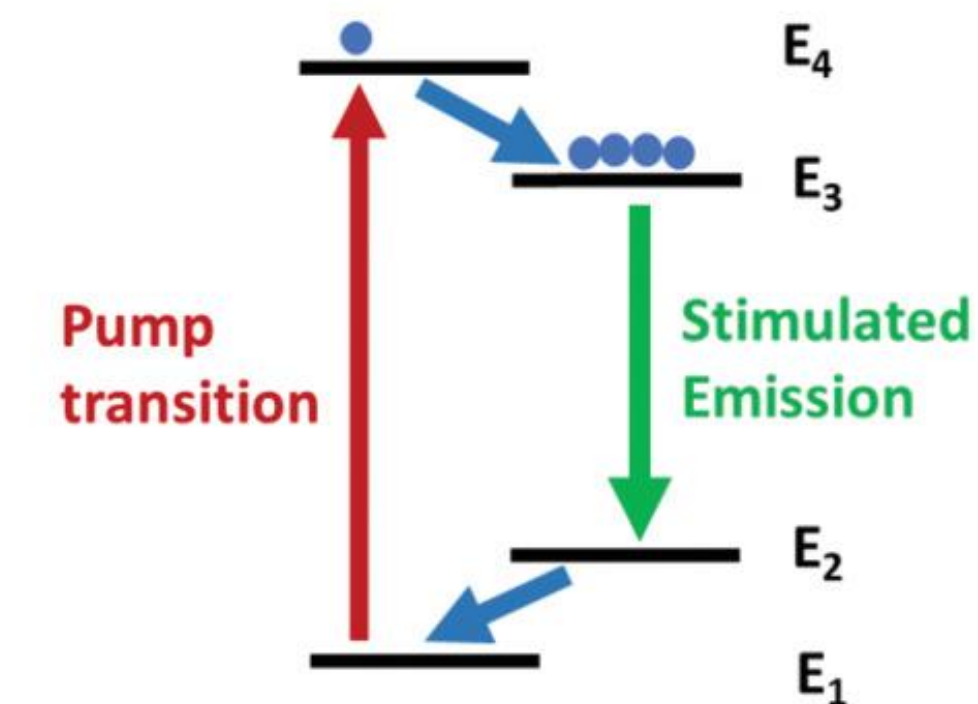
(a)

(b)

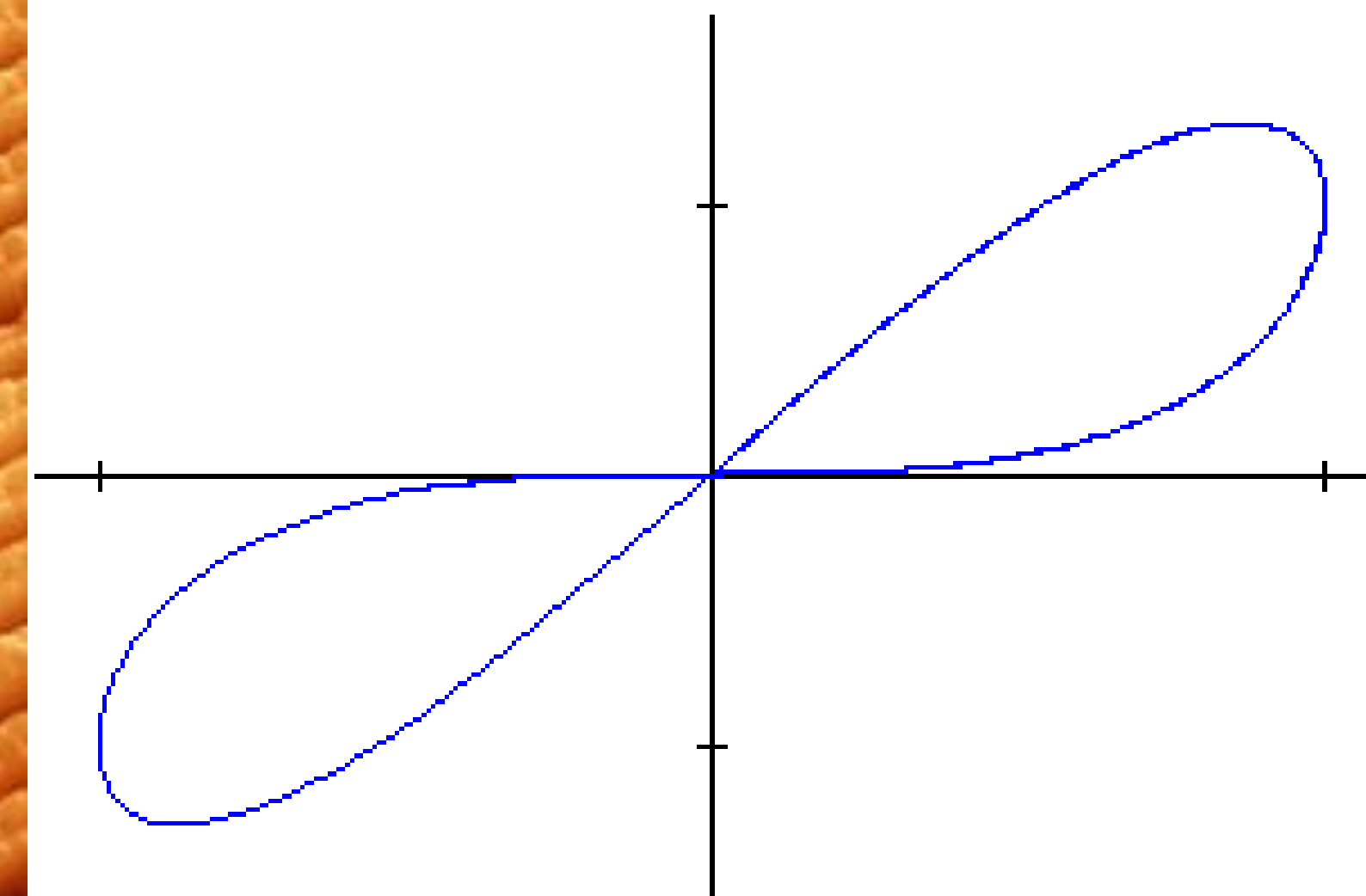
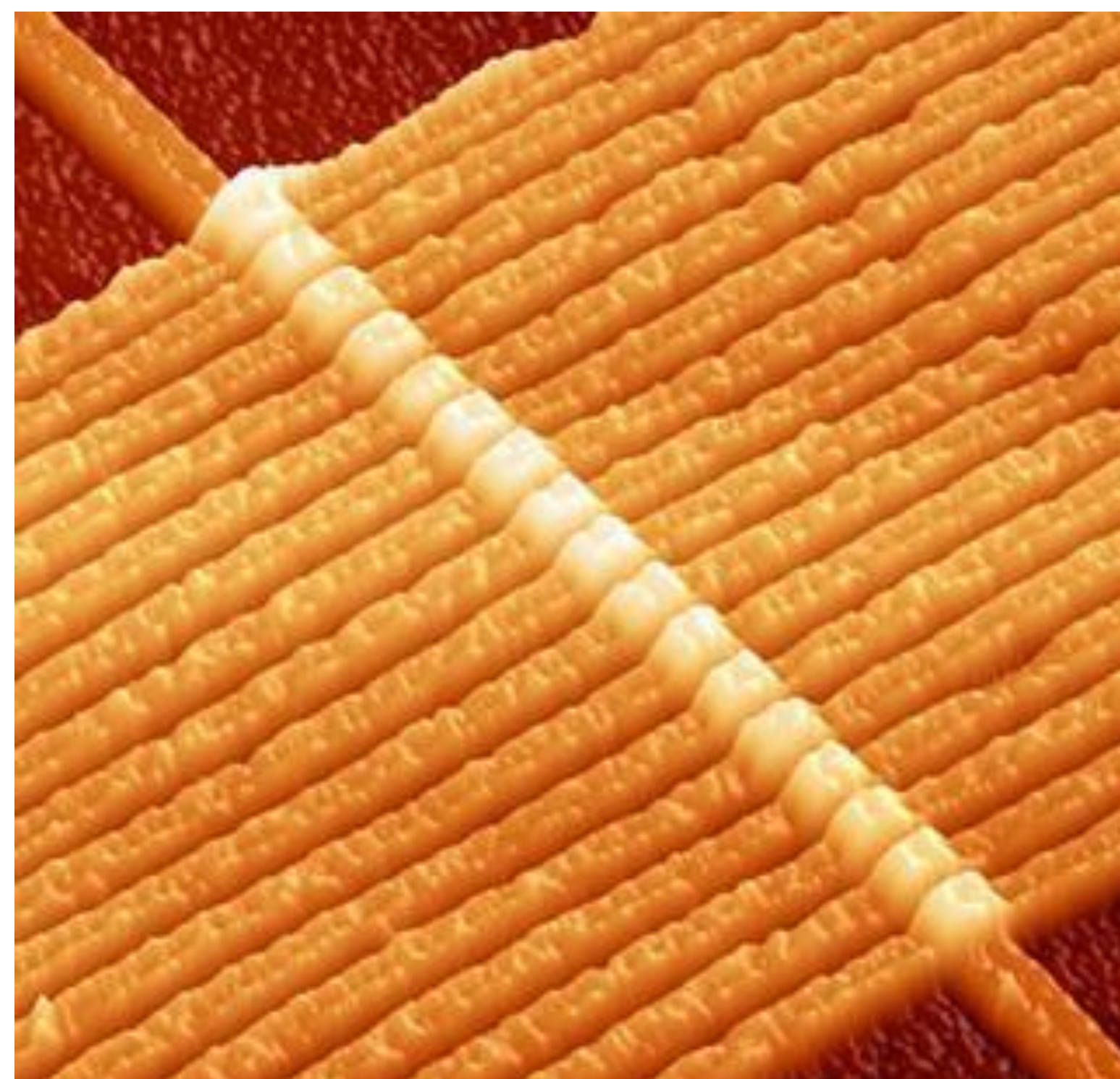
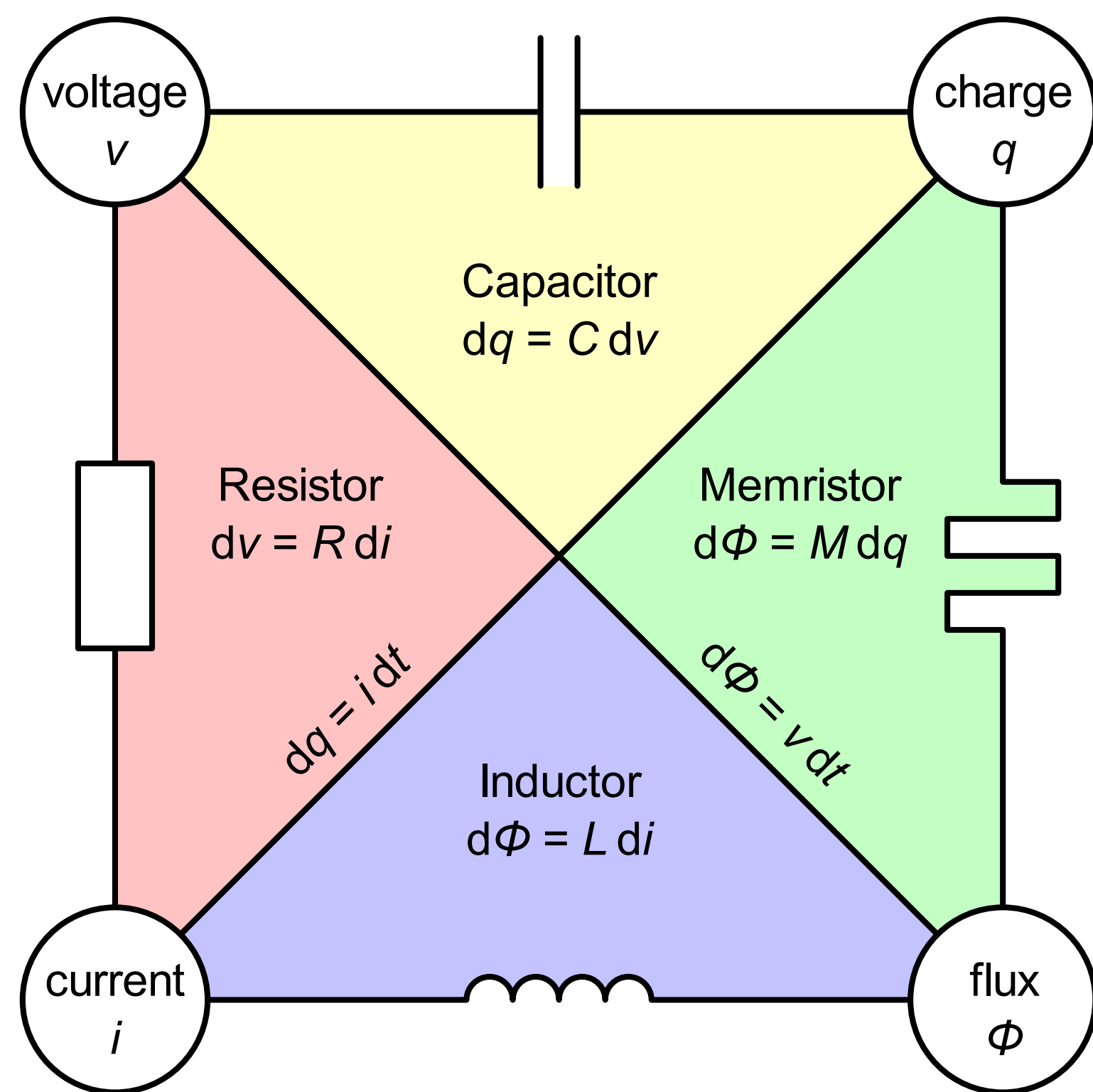
Three-level system

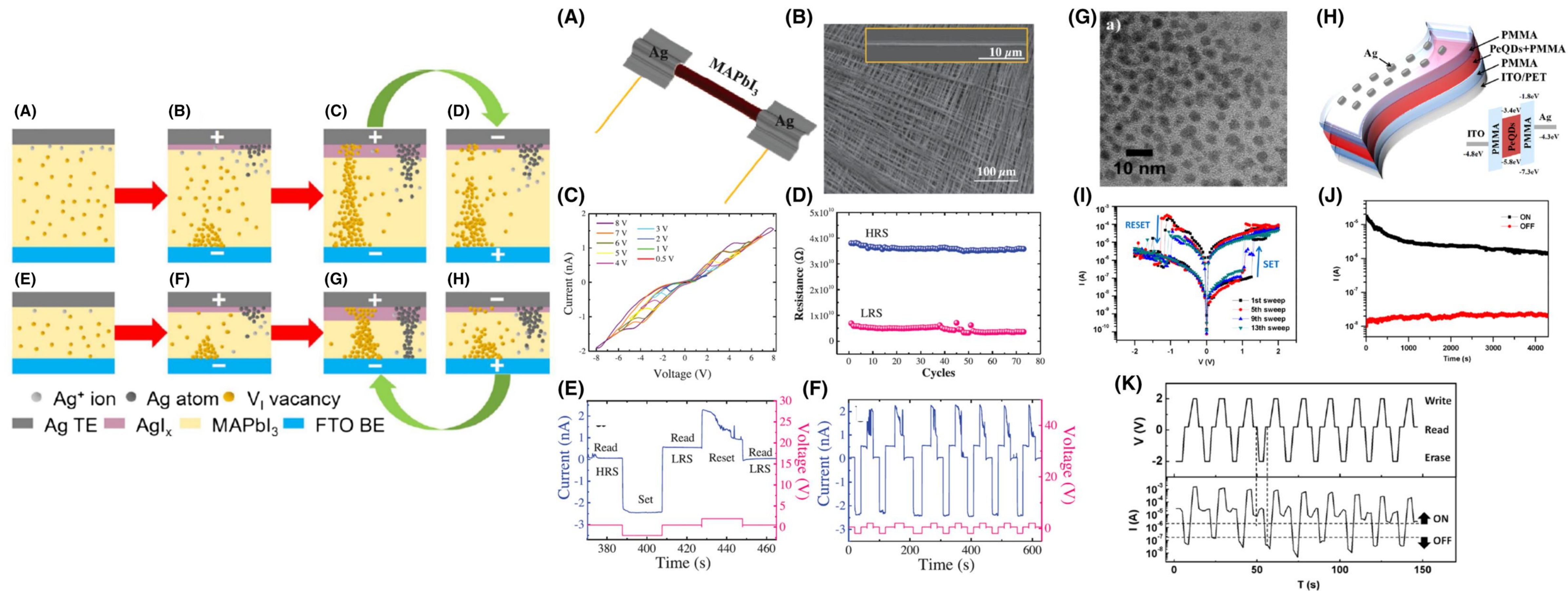


Four-level system



# МЕМРИСТОРЫ НА ОСНОВЕ ГИБРИДНЫХ ПЕРОВСКИТОВ







НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ  
УНИВЕРСИТЕТ

