

# **One step fabrication of GaAs nanowires via anodization and their application as Infrared Photodetectors.**

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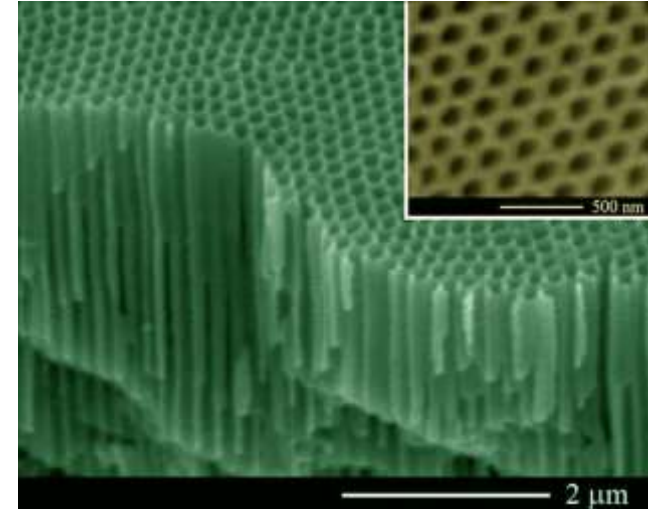
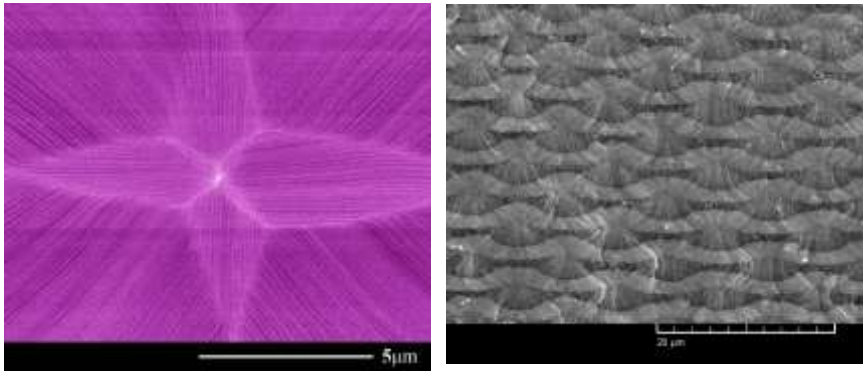
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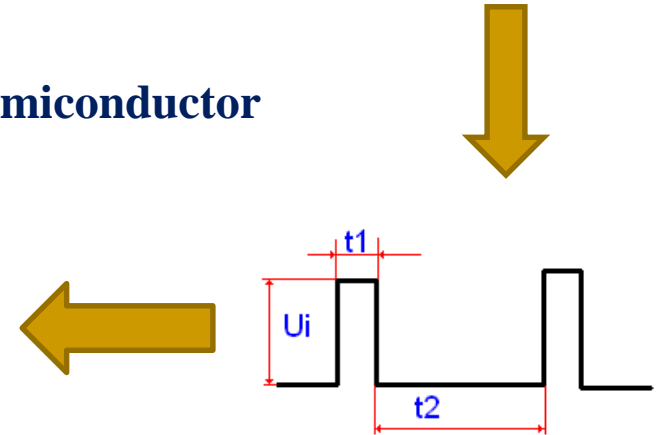
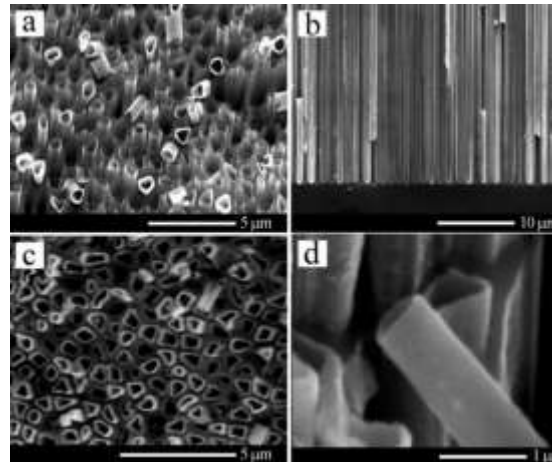
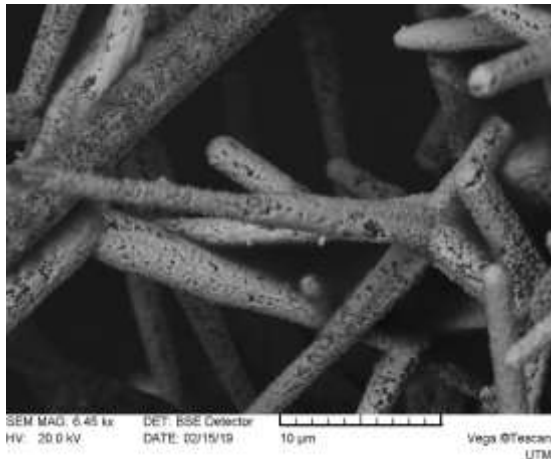
# Development of advanced technologies for obtaining of semiconductor nanomatrix and other low dimensions semiconductor nanostructures

**Semiconductor nanotemplates based on semiconductor compounds such as: InP ( $E_g = 1.3$  eV at 300 K); GaAs (1.4 eV); CdSe (1.7eV); GaP (2.4 eV); ZnSe (2.7 eV), GaN (3.4 eV)**

## Material Nanostructuring by Design

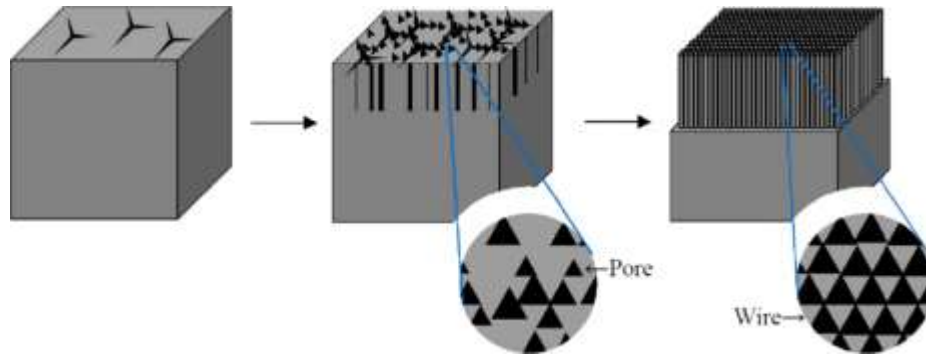


## Nanocomposite materials metal/ semiconductor

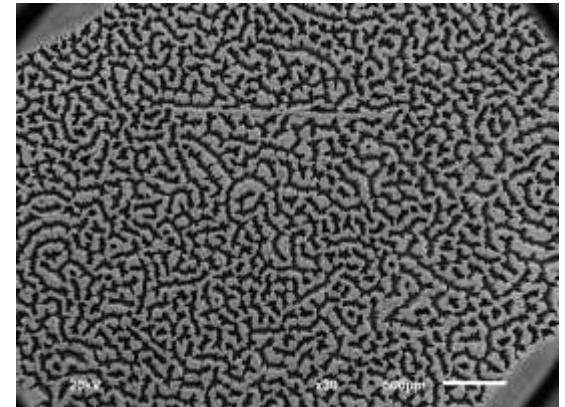
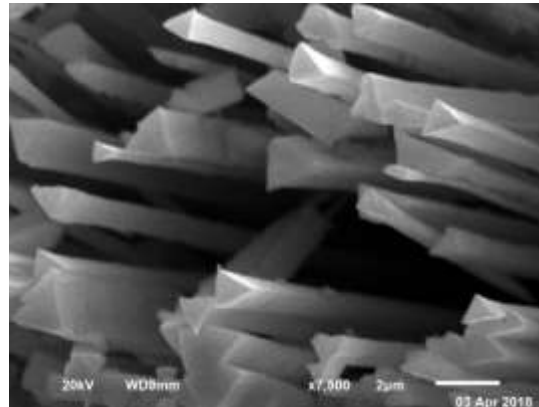
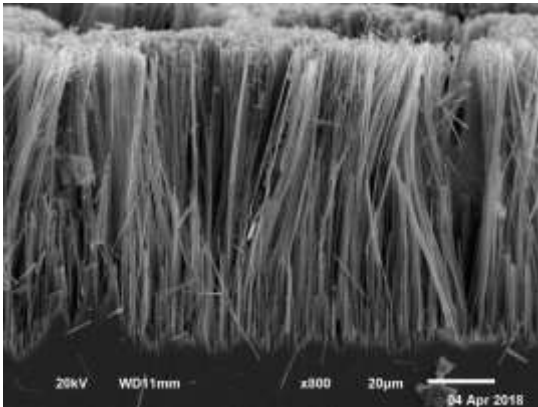


## Pulsed electrochemical deposition

# Electrochemical nanostructuring of GaAs: from porous to 1D nanostructures

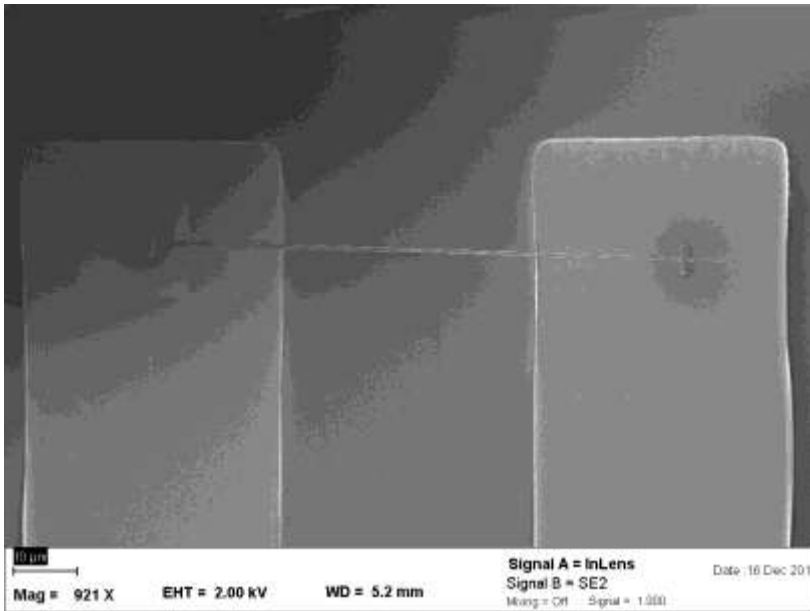


Schematic representation of formation of GaAs nanowire arrays

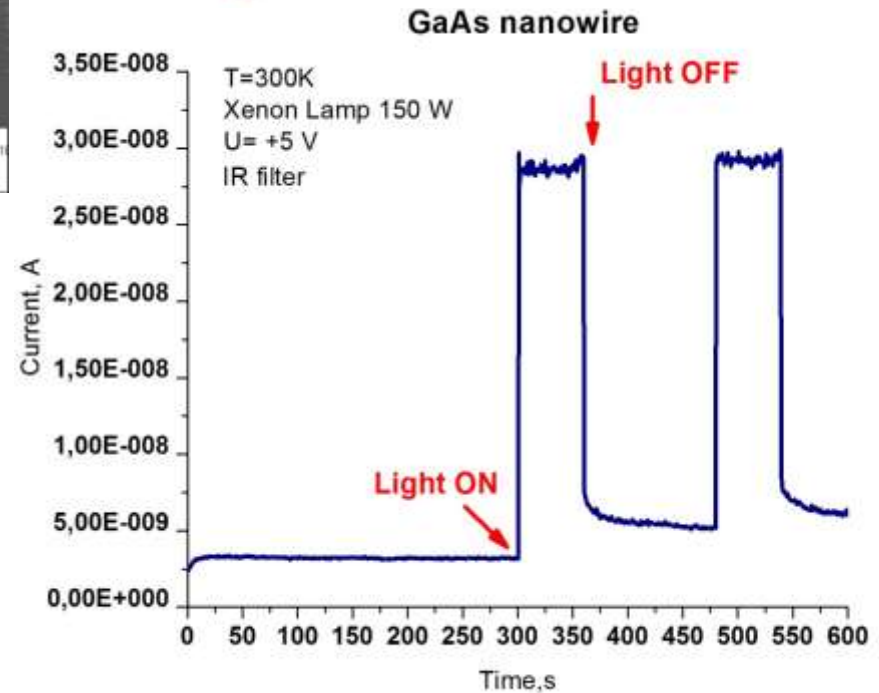
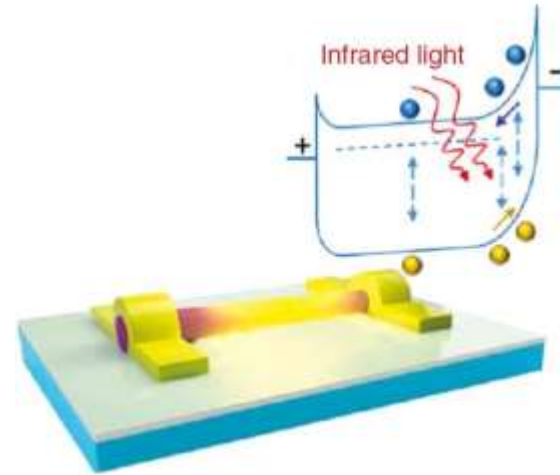


- Cost-effective
- Accessible
- Environmentally friendly (nanostructuring in NaCl)

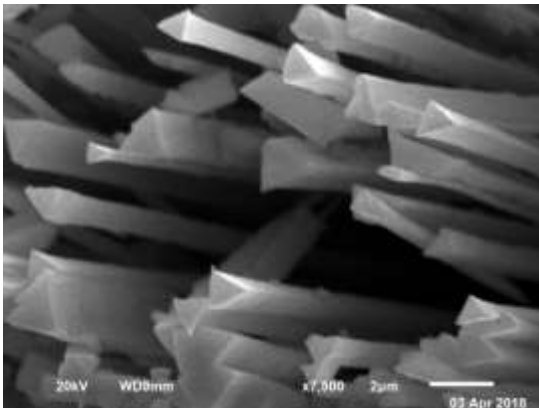
# Photosensibility study of GaAs nanowires



SEM image of GaAs nanowire contacted with FIB



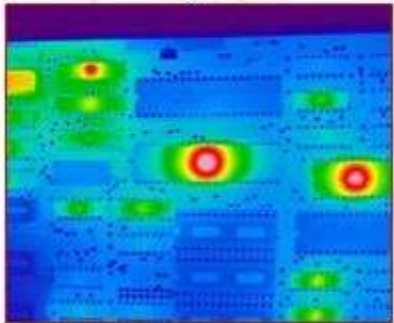
Photocurrent response



# Applications of IR Detectors Arrays

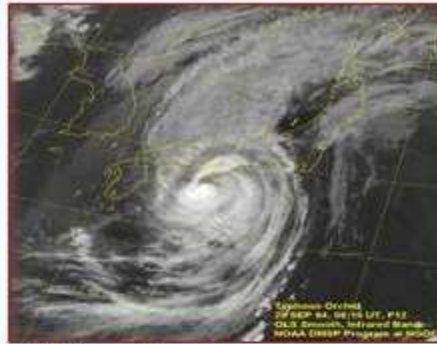


•Automotive Industry

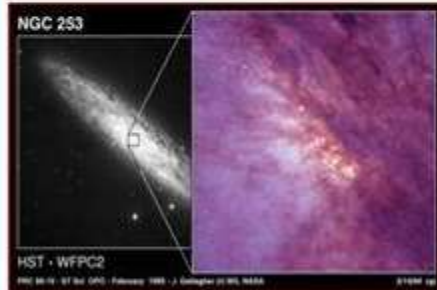


•Electronics

**Industrial**

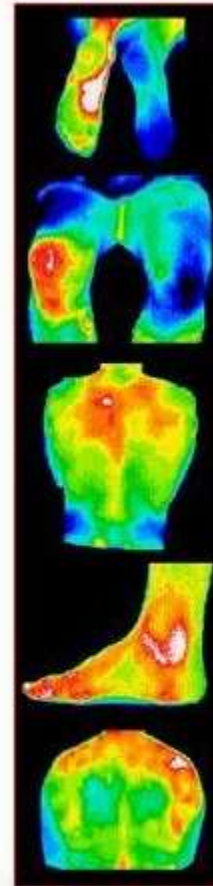


•Weather Forecasting



•Astronomy

**Space**



**Medical**



• Night vision



•Infrared target detection

**Military**

- Missile tracking
- Environmental sensing

**Thank you for attention**