# TPV-
# Termiczne Ogniwa Fotowoltaiczne

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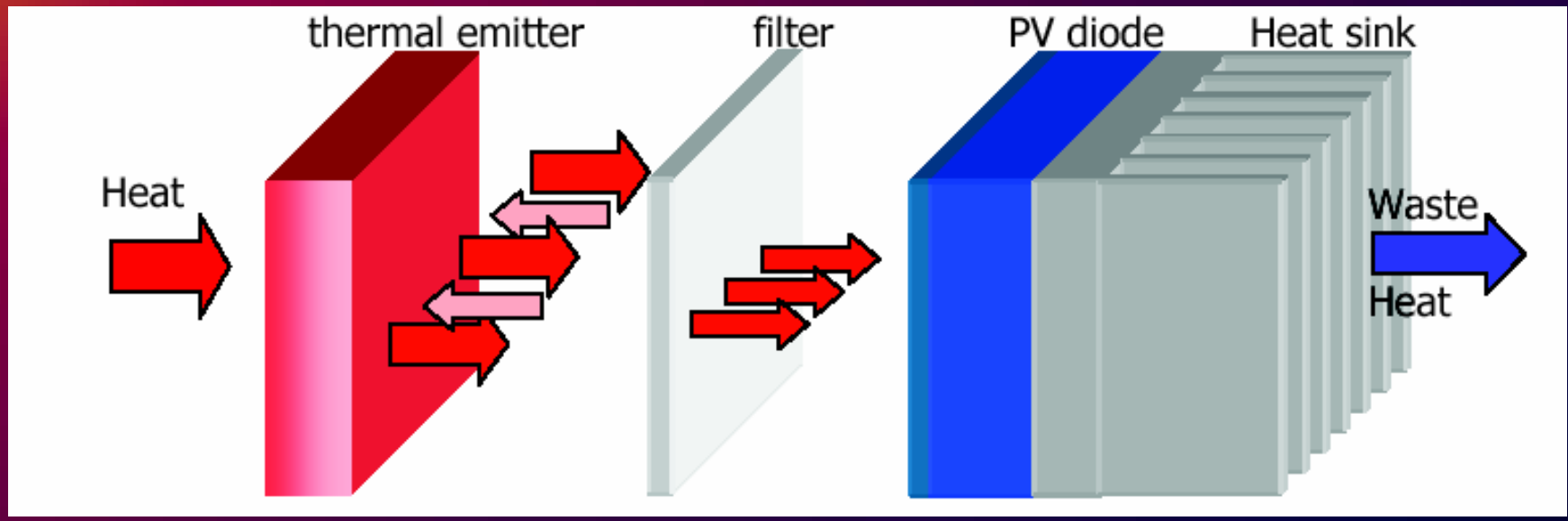
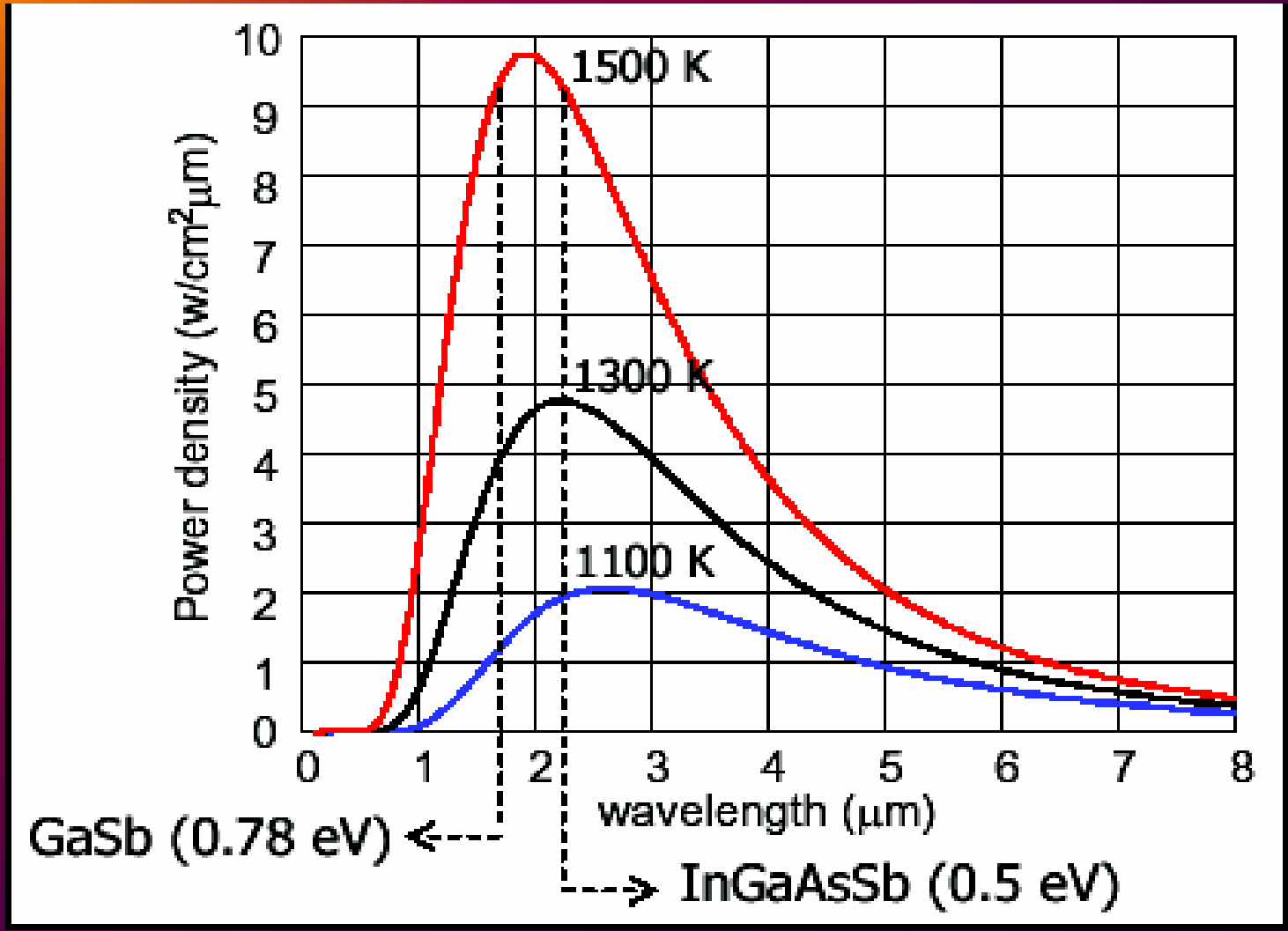
TPV-technika zamiany promieniowania cieplnego na energię elektryczną przy użyciu ogniw fotowoltaicznych



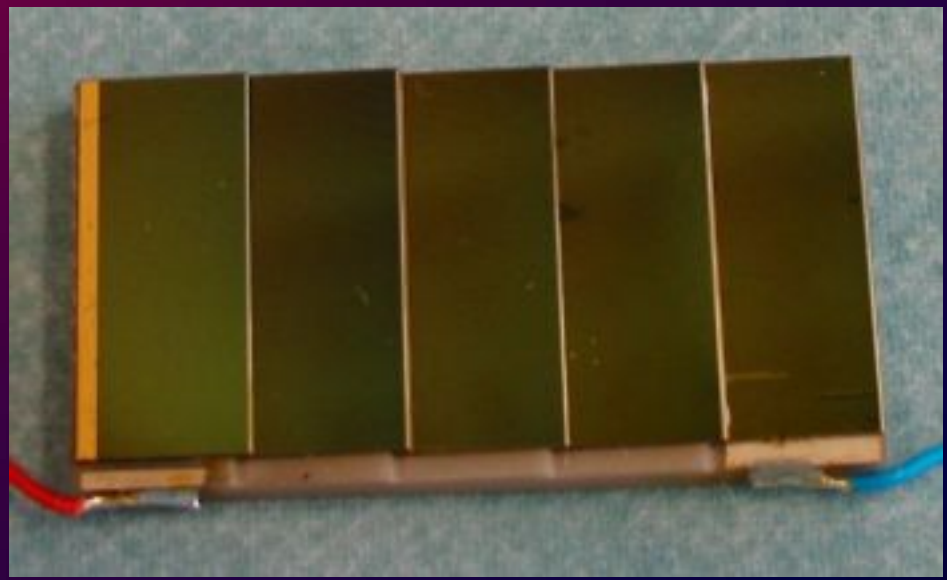

1500 K
1300 K
1100 K
Power density (w/cm²μm)
wavelength (μm)
0
1
2
3
4
5
6
7
8
9
10
GaSb (0.78 eV)
InGaAsSb (0.5 eV)

# Stosowane Ogniwa TPV

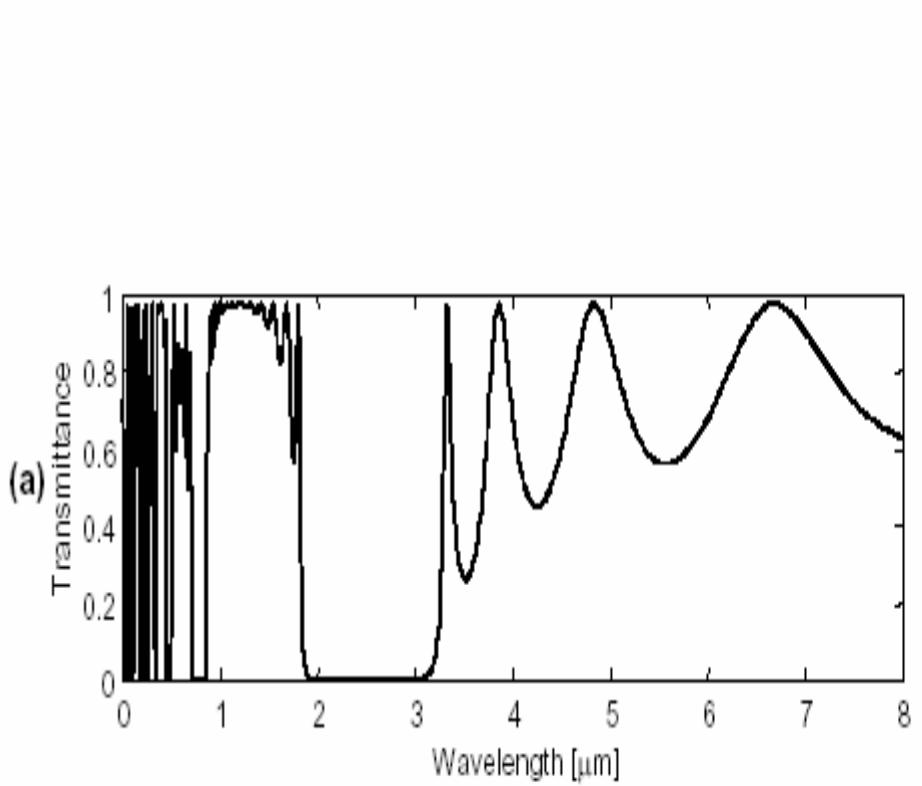
GaSb E=0,78 eV

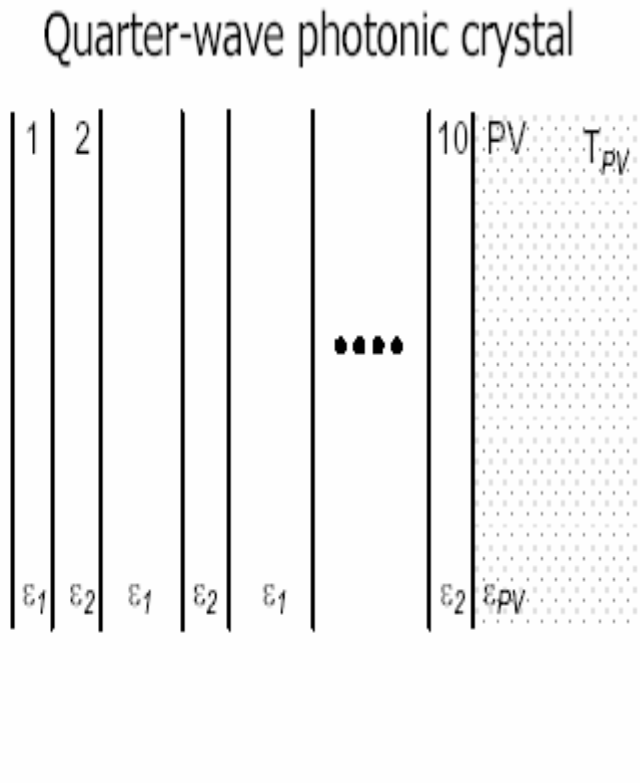
InGaAs E=0,75 eV

InGaAsSb E=0,5 eV



# 1 D kryształ fotoniczny $Si/SiO_2$ jako filtr



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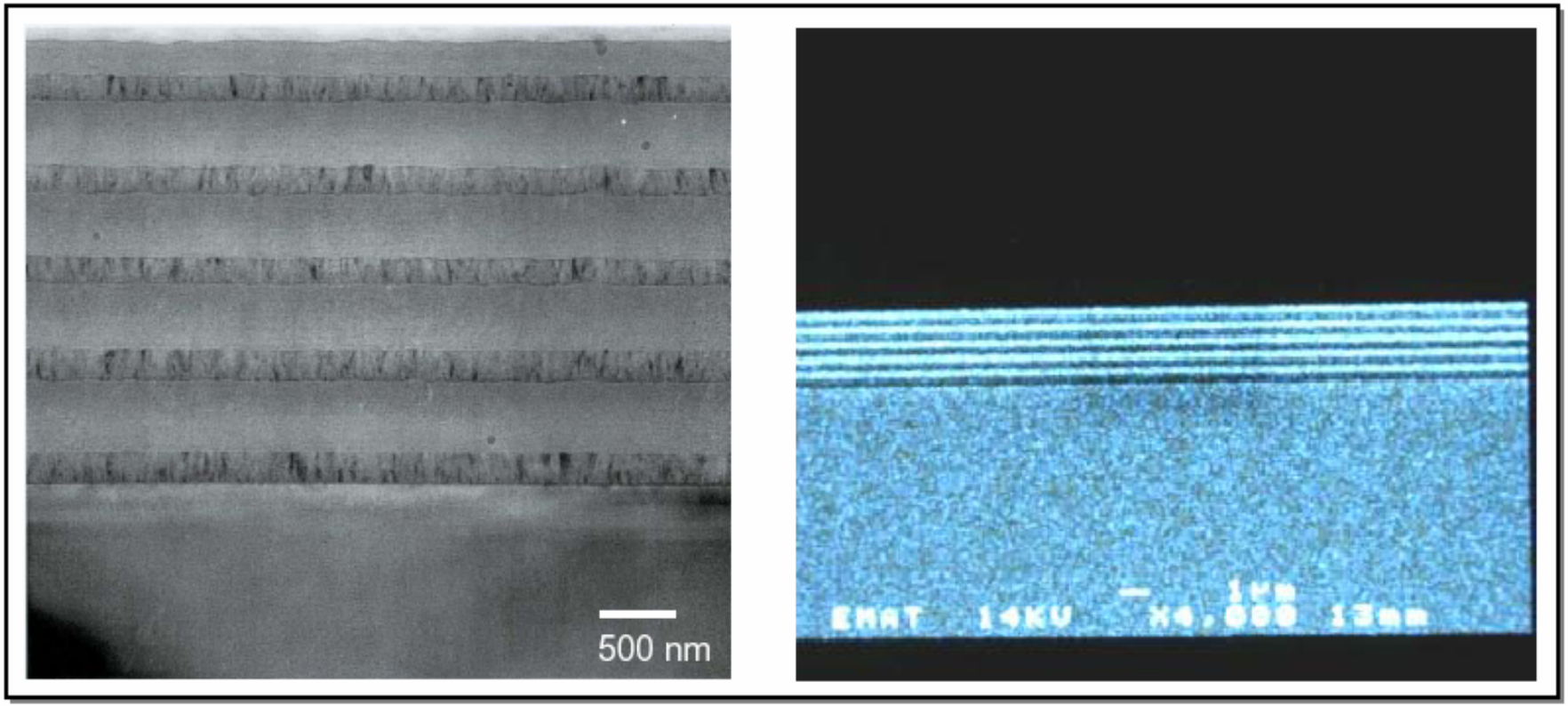
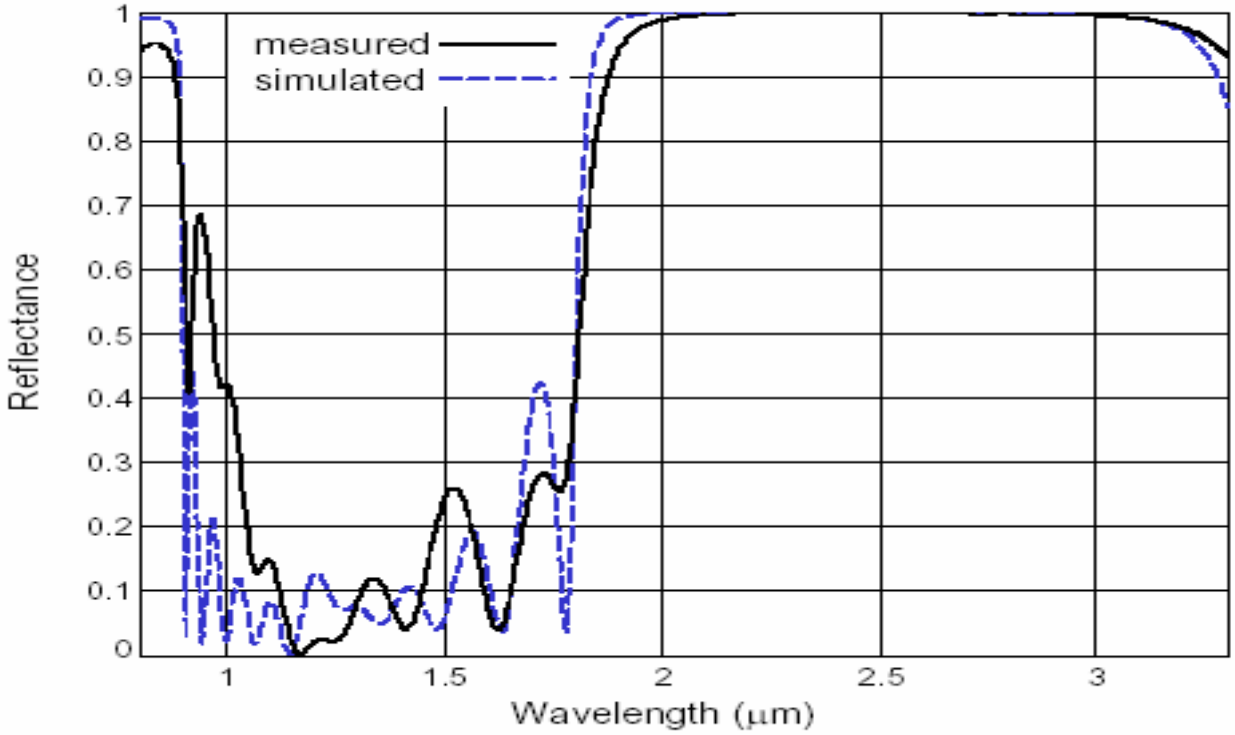



Si = lighter layers (170nm)

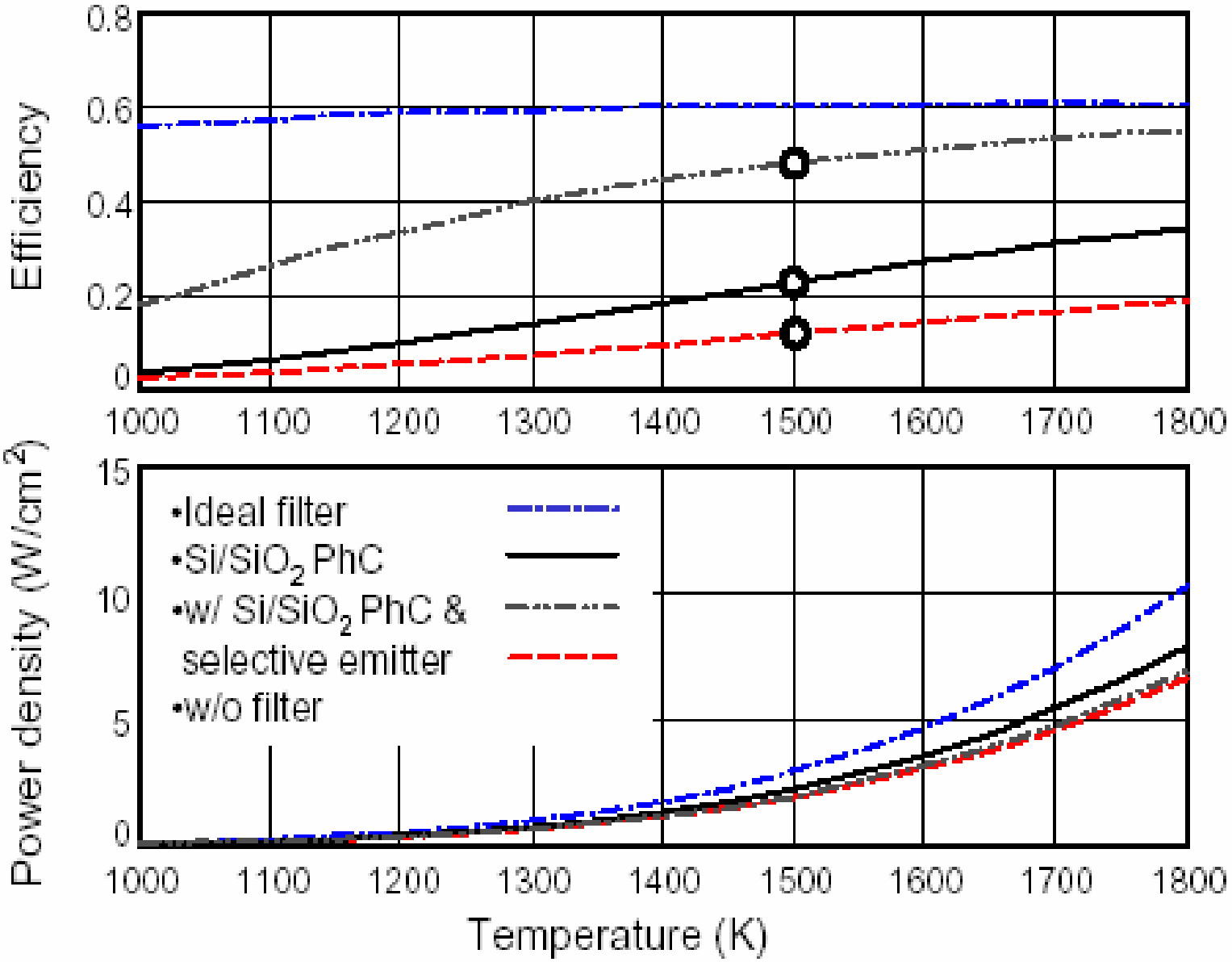
$SiO_2$ = darker layers (390nm)

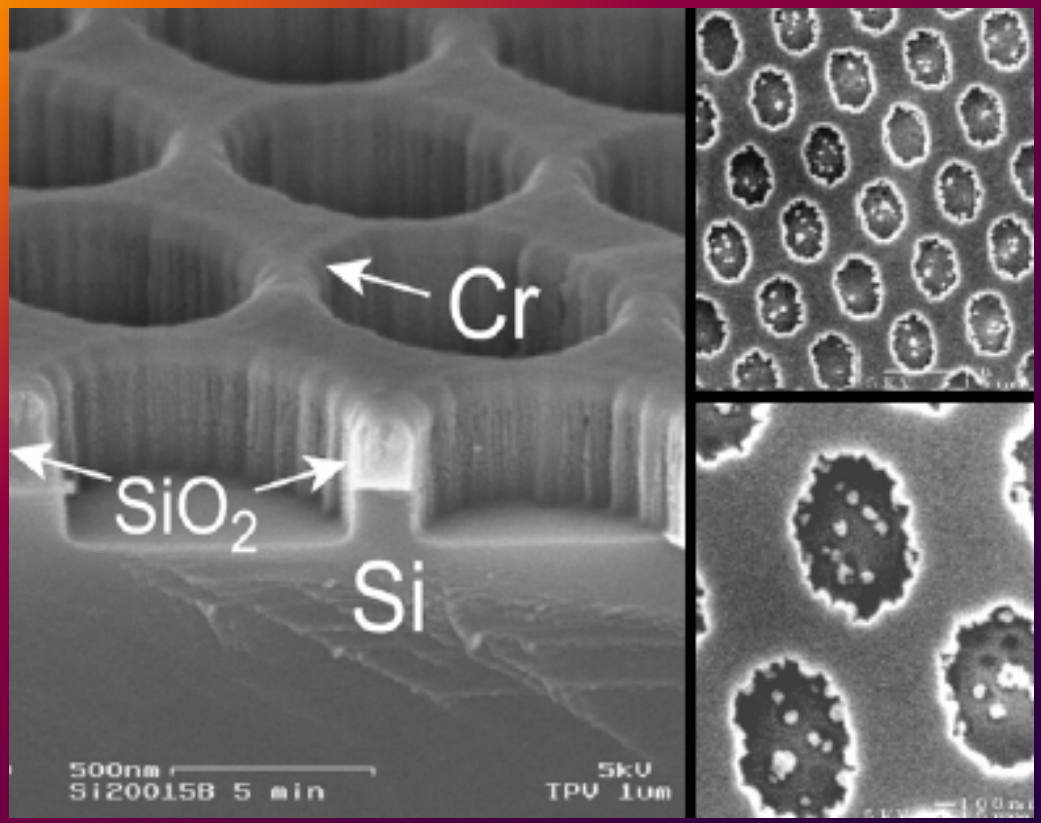



Estimated TPV system performance using measured data

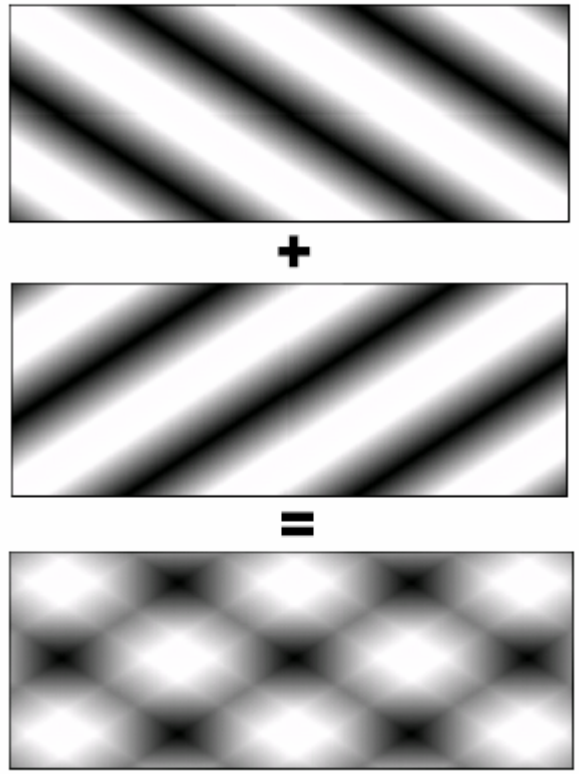
| $T_{BB}$ $(K)$ | $\eta_{TPV}$ $(\%)$ | $P_{PV}$ $(W/cm^2)$ | $\eta_{spectral}$ $(\%)$ | $T_{>\omega_g}$ $(\%)$ |
|---|---|---|---|---|
| 1300 | 15 | 0.7 | 26 | 65 |
| 1400 | 19 | 1.2 | 33 | 65 |
| 1500 | 24 | 2.1 | 40 | 65 |

# 2D kryształ fotoniczny jako emiter selektywny






## Interference Lithography



# Palnik z użyciem TPV

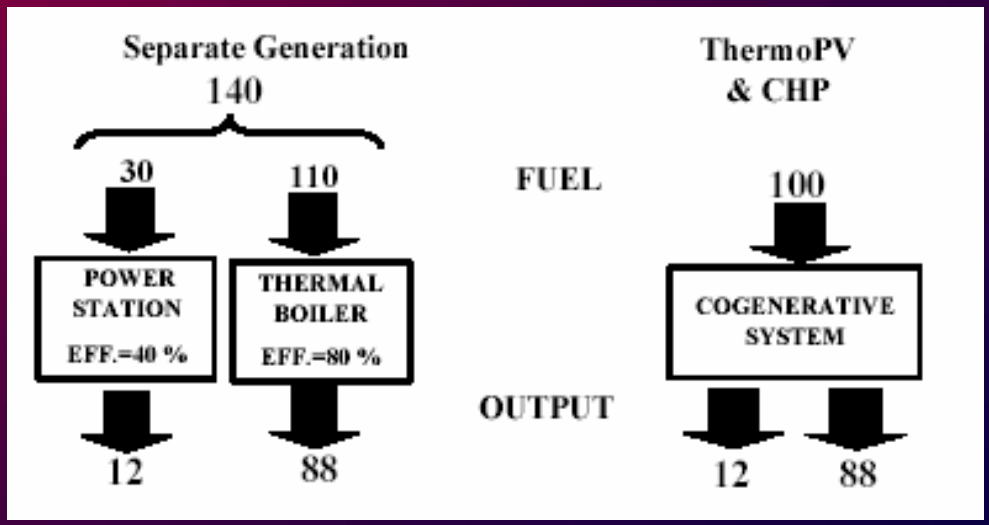

Midnight Sun®

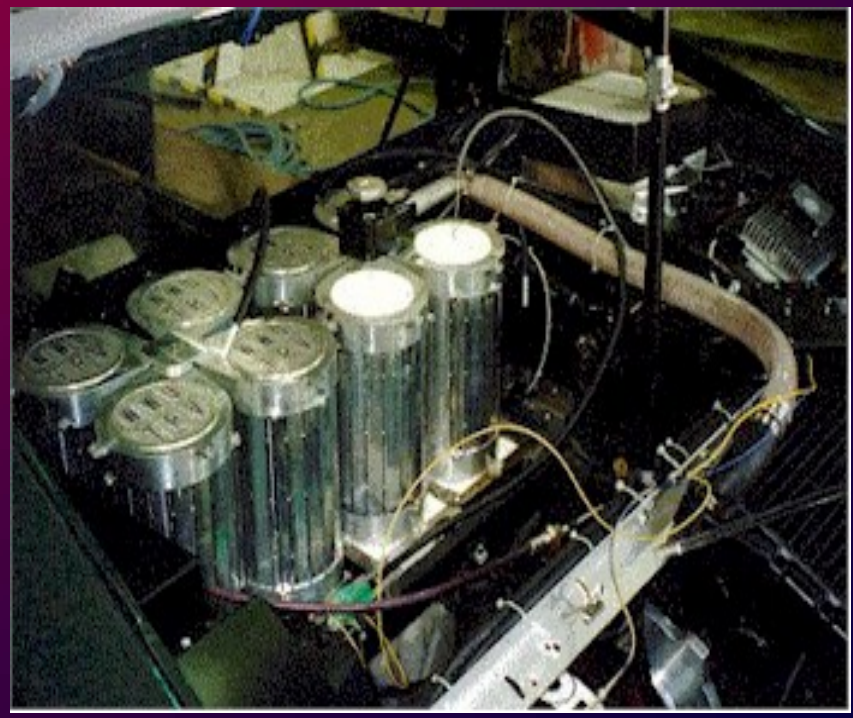
JX Crystals USA

$P_{th}$=7,3 kW

$P_{el}$=100W

GaSb PV cells





Western Washington University

Viking 29

$P_{el}$=6,5 kW  GaSb  PV cells

# Bibliografia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