UNIVERSITEIT GENT

Physics and chemistry of nanostructures

Progres Navolchi project

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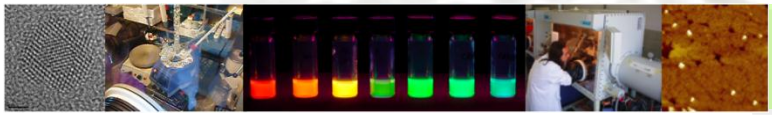


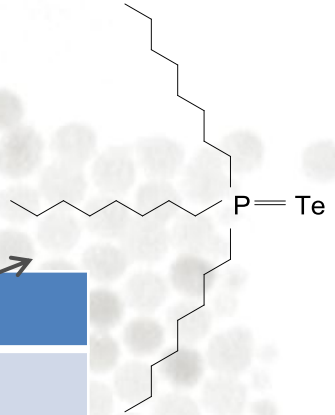
Physics and Chemistry of Nanostructures Group

FCN

http://www.nano.UGent.be

Materials

- HgTe – baseline synthesis (under development)
  - Variation on published hot injection approach

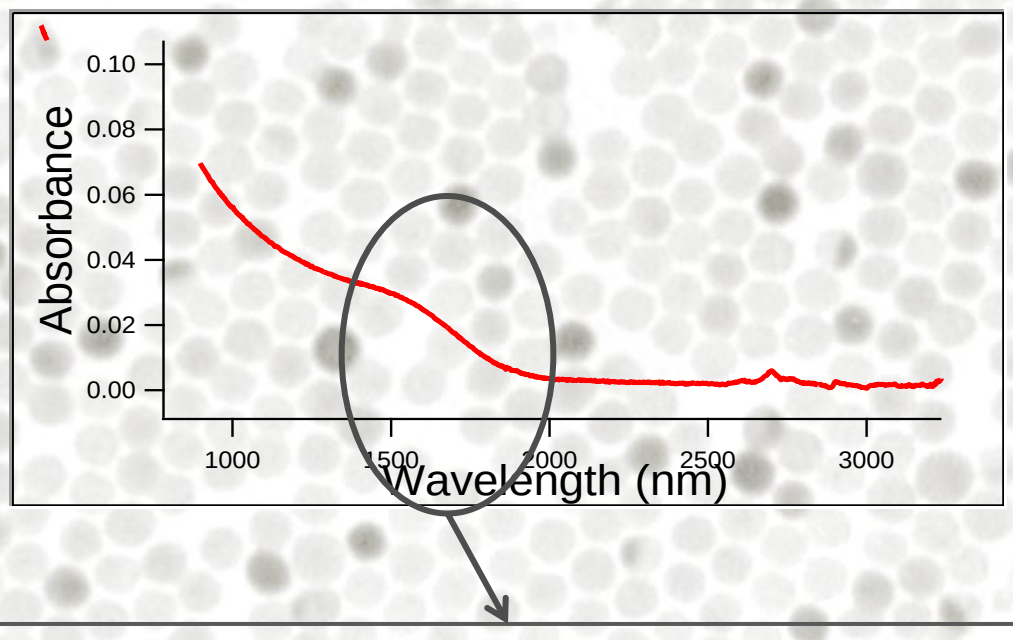


Synthesis conditions	
Precursors	$HgCl_2$ and TOP-Te
Hg:Te	0.4 mmol:0.4 mmol
Injection Temp.	60°C
Growth Temp.	60°C
Reaction time	15 min

Keuleyan et al., J. Am. Chem. Soc. 2011; *133*; 16422-16424

Materials

- HgTe baseline synthesis
  - Initial result:



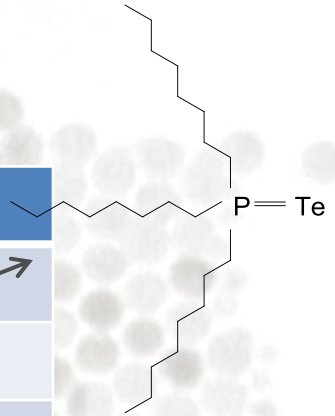
Band gap in 1500-2000 nm range
=
good starting point to cover wavelengths in 1300-1600 nm range

R. Xie, D. Battaglia and X. Peng; J. Am. Chem. Soc. 2007; *129*; 15432-15433

Materials

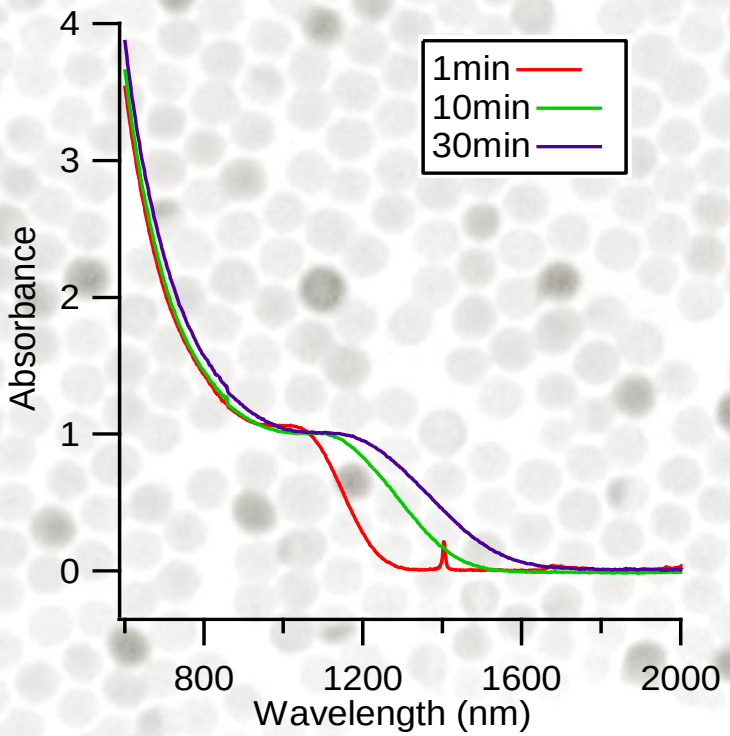
- **HgTe improvised synthesis from base line synthesis**

Synthesis conditions	
Precursors	$HgCl_2$ and TOP-Te
Hg:Te	1 mmol:1 mmol
Injection Temp.	60°C
Growth Temp.	60°C
Reaction time	1,3,5,10,15 and 30



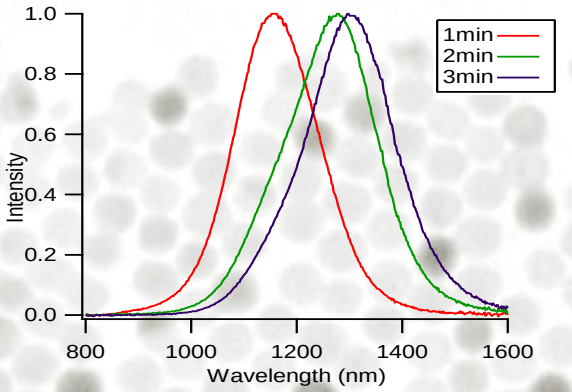
Materials

- HgTe improvised synthesis
  - Absorption spectrum



Materials

- HgTe improvised synthesis
  - Emission spectrum



  - TEM images