

# Physics and chemistry of nanostructures

Progress Navolchi project

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# Outline

- **People**
- **Materials**
- **Processing**
- **Properties**
- **Devices**
  - Absorbance of functionalized waveguides
- **Planning of future work**



# People

- Kishu Sagar
  - New PhD student – started as from March 18<sup>th</sup>



# Materials

- **Redirection in view of gain applications**
  - **InP/CdS (type 2 core/shell)**
    - Synthesis of InP cores possible, optimization needed
  - **HgTe**
    - Literature study finished, synthesis works starts this week



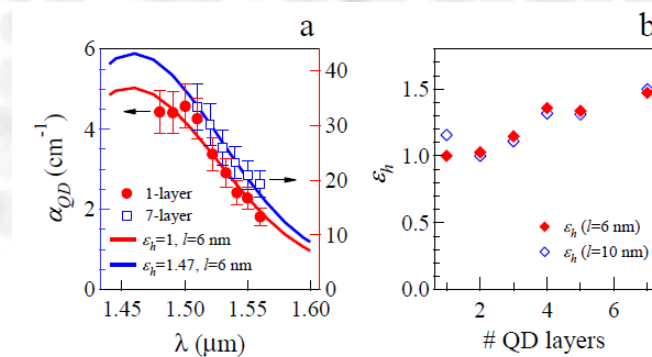
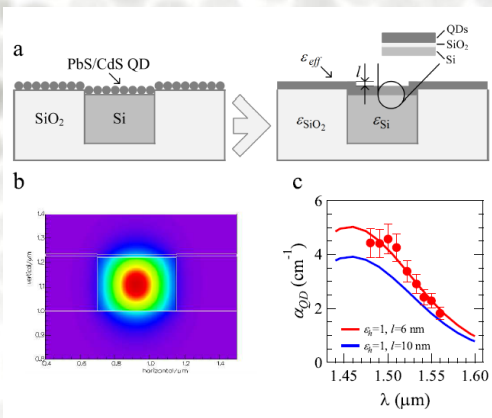
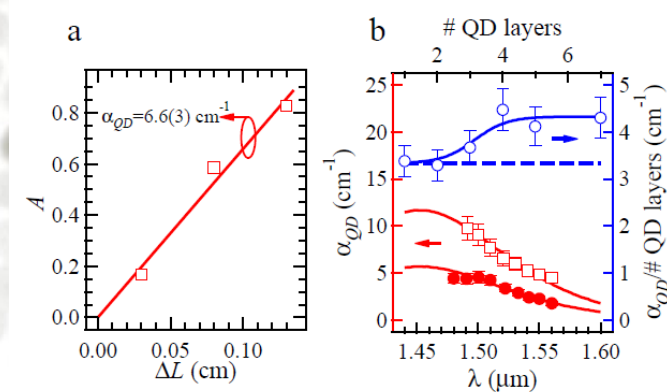
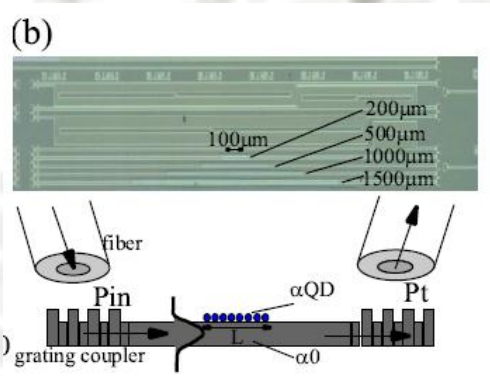
# Properties

- **Absorption Enhancement**
  - Research currently extended in the direction of multilayers



# Devices

- Absorbance in QD functionalized waveguides
- Set of measurements finished, manuscript submitted



# Future work

- **Materials synthesis**
  - Development of novel quantum dots
- **Properties**
  - Extend absorption enhancement to multilayers and core/shell particles
  - Continuation of pump-probe studies to understand carrier relaxation and light amplification
- **Devices**
- **Sample exchange with Valencia**
  - No decision made yet

