

Title: Laboratoire de Physique et d'Etude des Matériaux (LPEM) , (Lionel Aigouy)

- 4 permanents researchers
 - Lionel Aigouy (CNRS) and Zhuoying Chen (CNRS)
 - Laurent Billot (MC) and Alexandre Zimmers (MC)
- Number of people involved in the GDR
Same than the ones listed above.
- Area of expertise of the lab
 - Thermal characterization (SThM, fluorescence)
 - Photovoltaic devices fabrication, plasmonic structures
- CNRS and/or univ section
 - CNRS sections 4 and 8
- Which preferential axes ?
 - Mesures de propriétés
 - Elaboration

AXE
Élaboration
Mesures de propriétés
Mesures de performances de dispositif
Simulations/Théorie

Scientific expertise, overview, major themes in relation to the GDR

- Back bone of the labs regarding chemistry or physics (main research subject)
 - Chemistry : synthesis of perovskite materials for solar cells, synthesis of plasmonic nanorods and nanostructures
 - Physics : thermal effects in devices, thermal degradation of solar cells, improvement of solar cells, fluorescence enhancement near plasmonic nanostructures
- Which heat carriers ?
- Type of energy conversion
 - Photovoltaïcs
 - Photothermal detection
- What kind of applications are targeted ?
 - Fabrication of low cost solar cell devices (perovskite based)
 - Flexible solar cells
 - Enhanced solar cells with dielectric and plasmonic nanostructures
 - Photothermal detectors with gold nanorods

Porteurs d'énergie
Phonon
Electron
Type de conversion d'énergie
Thermoélectrique
Photovoltaïque
Thermophotovoltaïque
Piézoélectrique
Application relative à l'énergie ou autre
Récupération
Stockage
Capteurs
Gestion thermique des nanodispositifs
Dispositifs flexibles
Performances/fiabilité des nanodispositifs
Alimentation/Nano-robotique
Autre ?

Please put numbers (watt, Joule, Kelvin, etc...)

Technical or technological expertise in relation to the GDR issues

- What kind of materials/dimensions
 - Plasmonic nanostructures (50 nm- 500nm)
 - Perovskite thin films (1µm max)
- Bottom-up or top-down ? Both
- What kind of elaboration techniques
 - Chemical means
- What kind of characterization technique are mastered by the lab/group/team
 - SThM, fluorescence SNOM, fluorescence microscopy
 - Electrical characterization
 - LBIC Microscopy (Light Beam Induced Current Microscopy)
- Special instruments or methods (give few highlights)
 - Fluorescent SNOM that can allow to measure temperature and local electromagnetic fields
- Codes/numerical tools/modelling

Looking for collaborations ??

Caractéristiques physicochimiques
Caractérisation microstructurale
Electrique
Thermique
Mécanique
Magnétique
Autre ?
Type et taille caractéristiques des nanomatériaux
Élaboration
Caractérisation d'objets
Simulations