

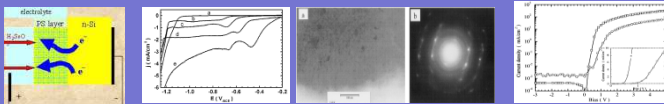
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Sergio Stein^b, David Hauser^b, Guillaume Savelli^b,
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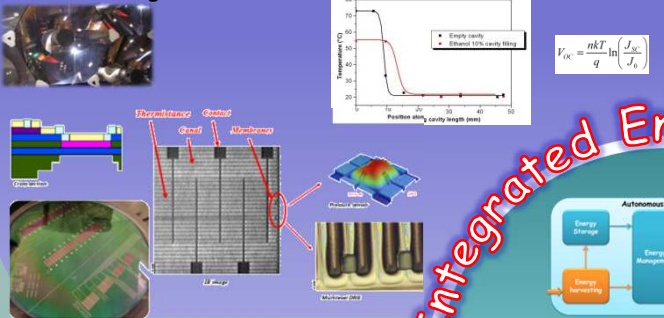
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Photovoltaics

Electrochemical co-deposition (CdTe, ZnSe, ...) for 3rd generation PV [1]



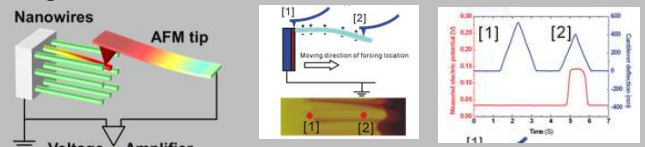
MEMS cooling for CPV [2]



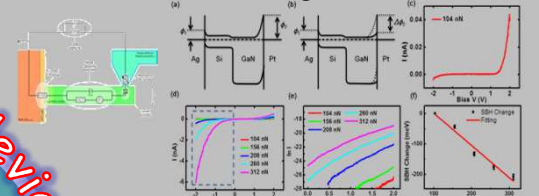
Piezoelectrics

ZnO, GaN, GaAs, ... nanowires

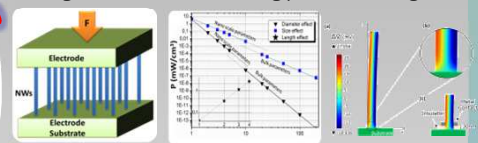
Single Nanowire PiezoPotential measurement [4]



Electrical Characterization & Modeling [5]

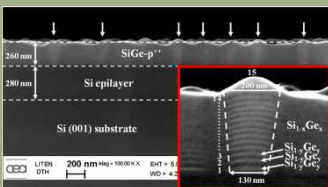


Scaling of NWs for energy harvesting [6]

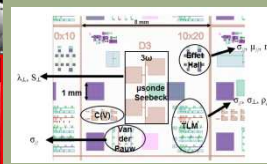
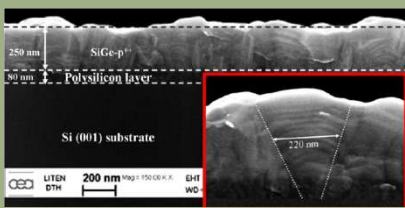


Thermoelectrics

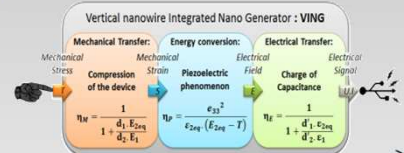
Quantum Dot Superlattices (SiGe, Silicides, ...) [3]



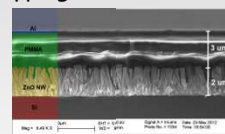
$$Z = \frac{\sigma^2}{\lambda}$$



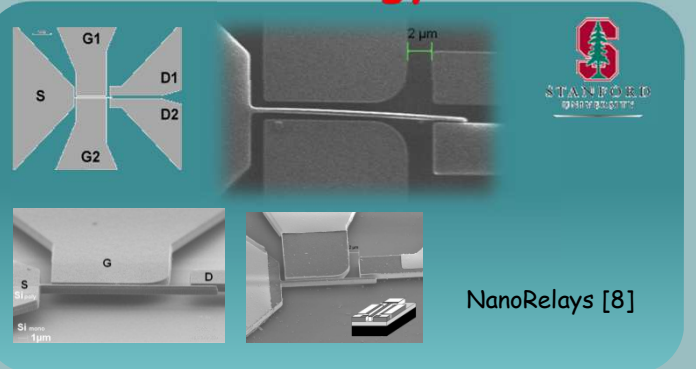
Modelling [7]



Prototyping [7]



Energy Control



[1] L. Montès, M. Gros-Jean, R. Hérino and D. Lincot, *Electrochemical Society Fall Meeting, Boston (1998)*. (invited)
[2] L. Montès, B. Bercu, 'A gravity independent integrated passive cooler for solar cell efficiency improvement', 35th IEEE Photovoltaic Specialists Conference (2010).
[3] D. Hauser, G. Savelli, M. Plissonnier, L. Montès, J. Simon, *Thin Solid Films*, 520-13, p4259
[4] X. Xu, A. Potié, R. Songmuang, J.W. Lee, B. Bercu, T. Baron, B. Salem and L. Montès, *Nanotechnology* 22,105704 (2011).
[5] Y.S.Zhou, R. Hinchet, Y. Yang, G. Ardila, R. Songmuang, F. Zhang, Y. Zhang, W. Han, K. Pradel, L. Montès, M. Mouis, Z.L. Wang, *Advanced Materials* (2012)
[6] R. Hinchet, J. Ferreira, J. Keraudy, G. Ardila, E. Pauliac-Vaujour, M. Mouis, L. Montès, "Scaling rules of piezoelectric nanowires in view of sensor and energy harvester integration.", *IEDM 2012*.
[7] R. Hinchet, S. Lee, G. Ardila, L. Montès, M. Mouis, and Z.L. Wang, "Design and guideline rules for the performance improvement of vertically integrated nanogenerator", *PowerMEMS 2012*.
[8] R. Hinchet, L. Montès, G. Bouteloup, G. Ardila, R. Parsa, H.-S. Philip Wong, R. T. Howe, "Electrical and Mechanical Characterization of NEMS switches", *Design, Test, Integration and Packaging of MEMS/MOEMS Symposium 2011*.

This work has been partly supported by European Community (EC) Seventh Framework Program through the Networks of Excellence NANOSIL and NANOFUNCTION under contracts 216171 and 257375, Cluster MicroNano Rhône-Alpes, Smingue UJF, BQR Grenoble INP.