



Dr Abdelilah SLAOUI is a research director at *Institut d'Electronique du Solide et des Systemes* (InESS, CNRS). He holds BS (1980) and MS (1982) degrees in fundamental Physics from the University Louis Pasteur (ULP) of Strasbourg in France. He received his PhD degree in semiconductor physics in 1984 at Laboratory PHASE, where he focused on laser crystallisation of implanted silicon for solar cells. Thereafter, he continued his work as postdoctoral fellow on gas immersion laser doping and oxidation of silicon, laser-induced ablation of materials and laser-induced crystallisation of Si, SiGe and SiC. He joined CNRS (Centre National de la recherche Scientifique) in 1986 as a research fellow. In 1989, he developed the activity based on lamp furnace heating for processing of solar cells and transistors. He joined the Oregon Graduate Institute at Beaverton, Oregon, USA in 1992 as a visiting scientist. *Slaoui's* research interests include MOSFET, TFT's transistors, memories and silicon based solar cells, and more recently on synthesis and characterizations of nanomaterials for photovoltaics and flash memories. He is presently the head of the photovoltaic group at InESS-CNRS, Strasbourg. More specifically, his team is working on Advanced processes (selective emitter, hetero-junctions, back contact cells) for ultra-thin silicon wafers and ribbon (<100µm) solar cells, on Synthesis and characterizations of thin films crystalline silicon (<5µm) on foreign substrates for photovoltaic applications; on Formation and characterizations of silicon and germanium nanoparticles in silicon oxide and silicon nitride films for photons conversion; on Fabrication and characterizations of metal and rare-earth doped transparent conductive oxide for solar cells applications and on Formation of silicon and germanium based nanostructures in high dielectric matrix for charges storage for non volatile memory applications. *A. Slaoui* participated and initiated numerous National as well as to European projects related to silicon based materials for solar cells. He has authored or co-authored more than 200 papers in Journals and Proceedings and contributed to books, and he has edited special issues and proceedings.

A. Slaoui co-organized 5 symposia dealing with materials for photovoltaic, one workshop on Materials for Energy (Nice, 2004), a workshop on Photovoltaic materials (Shanghai, 2005), a symposium on Advanced materials for Energy (Beijing, 2006), a workshop on Nanostructured Materials for Photovoltaics (Ankara, April 2008). He was chairman of the European MRS 2006 conference in Nice. He is co-chairman of coming international conferences on energy: First International Conference on Materials for Energy (Karlsruhe, Germany, 4 - 8 July 2010) and European Energy Conference Series (Barcelona, Spain, 19-23 April 2010).

Dr A. Slaoui served as expert and vice-chair for different physics panels (Marie Curie, IRSES, ...) for different Research Programmes of the European commission. He is currently serving as expert for national (ANR, ADEME, OSEO...) and European (Belgium, Norway,...) projects.

Dr. A. Slaoui was President of the European Material Research Society (E-MRS) in 2007-2009, and his is member of the European Material Forum.

Research topics

- Synthesis of silicon based materials and development of processes towards high efficient solar cells
- Nanostructured semiconductor materials embedded in dielectric matrix for photon conversion (photovoltaic) and charges storage (non volatile memories)

Research activities

- Advanced processes (selective emitter, hetero-junctions, back contact cells) for ultra-thin silicon wafers and ribbon (<100µm) solar cells
- Synthesis and characterizations of thin films crystalline silicon (<5µm) on foreign substrates for photovoltaic applications
- Formation and characterizations of silicon and germanium nanoparticles in silicon oxide and silicon nitride films for photons conversion
- Fabrication and characterizations of metal and rare-earth doped transparent conductive oxide for solar cells applications
- Formation of silicon and germanium based nanostructures in high dielectric matrix for charges storage for non volatile memory applications

Publications:

- ~120 papers in international journals
- ~100 papers in conferences proceedings
(more recent in <http://www-iness.c-strasbourg.fr/publications/slaoui.htm>)
- ~4 chapters in specialized books

* Chapter: "Polycrystalline Silicon Solar Cells" G. Beaucarne, A. Slaoui; in "Thin Film Solar Cells: Fabrication, Characterization and Application", John Wiley & Sons Ltd, edited by J. Poortmans & V. Arkhipov, (2006), pp. 97-132.

*Chapter "Polycrystalline Silicon Films for Electronic Devices", A. Slaoui, P. Siffert; in "Silicon: Evolution and Future of a Technology", Springer Verlag Ed. , edited by E.F. Krimmel, (2004), pp.45-65

*Chapter "High Temperature Deposition and Epitaxy of Si and SiGe" A. Slaoui, J. Poortmans, M. Caymax; in "Growth, Characterization and Electronic Application of Amorphous and Crystalline Si Thin Films", Transworld Research Network (TWR), ed. By R. Bergmann, Research Signpost 37/661 (2), pp.147-181 (2002)

• Editor of:

* "Rapid Thermal Processing"; in Mat. Science in Semiconductor Processing, Elsevier, V.1, 1998 by A. Slaoui (PHASE-CNRS), R.K. Singh (USA), T. Theiler (AST,DE), J.C. Muller (PHASE,FR)

* "Photon Induced Processing of Materials", in Applied Surface Science , Elsevier , V. 168, 2000; by A. Slaoui (PHASE-CNRS), D.H.A. Blank (Univ. Twente), P. Hoffmann (SFTT-Lausanne), I. W. Boyd (Imp. College London)

* "Thin Film Materials for Photovoltaics", in Thin Solid Films, Elsevier, V. 403-404, 2002; by A. Slaoui (PHASE-CNRS), A.Jager-Waldau (JRC-EC), C. Brabec (Erlangen), J. Poortmans (IMEC),

* "Thin Film and Nanostructured Materials for Photovoltaics P": THINK-I ; in Thin Solid Films, V. 146, Elsevier, 2004; by A. Slaoui (PHASE-CNRS), C. Brabec (Siemens), A.Jager-Waldau (JRC-EC), J. Poortmans (IMEC),

* "Thin Film and Nanostructured Materials for Photovoltaics IP": THINK-II ; in Thin Solid Films, Volumes 511-512, 26 July 2006; by A. Slaoui (INESS), C. Brabec (Konarka), A.Jager-Waldau (JRC-EC), J. Poortmans (IMEC)

* "Advanced Nanostructured Materials and Concepts for Photovoltaics: AMPS"; in Thin Solid Films, 2007 by A. Slaoui (INESS), G. Dennler (Konarka), A.Jager-Waldau (JRC-EC), M. Kroon (ECN)

* "Advanced Inorganic Materials for Photovoltaics", A. Slaoui, R. T. Collins, MRS Bulletin V32, (2007) p.211

A. Slaoui can be reached at InESS-CNRS, 23 rue du loess, F-67037 Strasbourg, France;

tel. +33 388 106 328; email: Abdelilah.Slaoui@iness.c-strasbourg.fr