

## Dr. Diego Alonso Álvarez

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### QUALIFICATIONS

- 2006 – 2011**    **PhD in Applied Physics (Sobresaliente “Cum Laude” and European Award)**  
Microelectronics Institute of Madrid (IMM-CSIC), Spain  
“Strain balanced epitaxial stacks of quantum dots and posts”
- Published 11 journal papers in high impact publications including a paper as first author and the inside front cover in *Advanced Materials* (Impact Factor 18.96).
  - Gave 5 talks and presented 4 posters in domestic and international conferences.
- 2005 – 2007**    **MSc in Nanostructured Materials (Sobresaliente, 1<sup>st</sup>)**  
Universidad Autónoma de Madrid, Spain
- 2000 – 2005**    **BSc in Applied Physics (Notable, 2:1)**  
Universidad Autónoma de Madrid, Spain

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### EMPLOYMENT

- 2016 – present**            **Research Associate** - Imperial College London, London, UK
- Postdoctoral position associated to the EPSRC funded project “High temperature, high efficiency PV-thermal solar system” in collaboration with the University of Glasgow, Naked Energy and Solar Polar.
  - Currently preparing 3 papers aiming to very high impact journals. An additional publication is in preparation as a briefing paper for the Grantham Institute for Climate Change.
- 2015 – 2016**            **Research Associate (EMRP researcher)** - Imperial College London, London, UK
- Project funded by the EURAMET's European Metrology Research Programme to contribute to the EMPE-51 project: “Metrology for III-V materials based high efficiency multi junction solar cells”.
  - Published 3 journal papers, one of them in the *IEEE Journal of Photovoltaics* as a result of the close collaboration with 10 European institutions on the topic of the spectroradiometer intercomparison.
- 2013 – 2015**            **Research Associate (Marie Curie Fellow)** - Imperial College London, London, UK
- Project funded by the European Union as part of the Marie Skłodowska-Curie Fellowships program.
  - Published a total of 5 journal and conference papers in collaboration with the University of Tokyo and the Fraunhofer Institute for Solar Energy.
  - Gave 3 invited oral presentations related to the research of this project.
- 2012 – 2013**            **Research Associate** - Heriot Watt University, Edinburgh, UK
- 1-year project funded by the USA company Illinois Tool Works Inc as a feasibility study on the application of spectral converters for thin film solar cells.
  - Published 3 journal papers and 3 conference proceedings, including an article as first author published in *Progress in Photovoltaics* (Impact Factor 7.365).

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### FELLOWSHIPS, GRANTS AND AWARDS

#### FELLOWSHIPS AND GRANTS

<b>2014</b>	<b>EMRP Researcher Excellence Grant</b> EURAMET, European Union. Personal competitive grant	<b>93869€</b>
<b>2012</b>	<b>Marie Curie Intra-European Fellowship</b> European Union. Personal competitive fellowship	<b>200372€</b>
<b>2009</b>	<b>CSIC short internship grant</b> Spanish Research Council, Spain. Personal competitive travel grant	<b>7150€</b>
<b>2007</b>	<b>PhD Scholarship</b> Madrid Regional Council. Spain, Personal competitive scholarship	<b>67200€</b>

#### AWARDS

- 2012**    **Best poster award** – 38<sup>th</sup> IEEE Photovoltaic Specialist Conference, Austin, TX (USA)
- 2011**    **European Awarded Doctoral Thesis**, Universidad Autonoma de Madrid, Spain

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## TEACHING AND SUPERVISION EXPERIENCE

### 2017 Associate Fellowship of the Higher Education Academy

#### 2013 – present Laboratory demonstrator - Imperial College London

Assisted with the delivery of pre-designed practical courses of the Physics degree and helped students to run their experiments, write the computer codes and analyse the results. Assessed their work, usually in the form of a report and an interview, and gave them feedback.

- 3<sup>rd</sup> Year – Computational Physics Lab (2016-17) – 100 students, 24 h + marking
- 1<sup>st</sup> Year – Computing Lab (Python) (2014-15, 2015-16) – 3 x 40 students, 48 h + marking, per year
- 2<sup>nd</sup> Year – Laboratory (Charges and Fields) (2013-14) – 3 x 12 students, 48 h + marking

#### 2013 – present Student supervision - Imperial College London

Planned research projects for UROP (2), BSc (7, 72 h) and MSci (2, 60 h) students. Trained the students in the necessary experimental techniques and in good lab practice or coding style. Gave them support and advice with the experiments. Assessed their work and gave them feedback. Assisted with the supervision and actively contributed to the research of PhD students, appearing as co-author in 3 journal papers (1 published, 2 submitted) and 2 conference proceedings.

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## EVIDENCE OF ESTEEM

### POSITIONS OF RESPONSIBILITY

#### 2016 – present Member of the “Science Toy Award” initiative

Promote the visibility of the Award, its goals and its values, championing diversity in STEM. Organise and coordinate the activities of the Award. Seek for sponsors and supporters.

#### 2016 – present Secretary of the Society of Spanish Researchers in the UK (London constituency)

Keep record and document the meetings and activities, its members and the agreements with other organisations. Coordinate with the Board of Directors of the SRUK.

#### 2015 – present Deputy UK representative for the COST Action Multiscale Solar (MP1406)

Represent UK research interests within the topics of the Action. Promote collaboration and the development of joint projects between the participating countries.

#### 2015 – present Spectroscopy Lab Manager

Induct the new users to the safety and use of the lab. Review and update risk assessments. Ensure that all equipment is in perfect working conditions, updating and upgrading them if necessary.

### CONFERENCE CHAIR

2017 Member of the organising committee of the coming SRUK Symposium, London, UK

2017 Session Chair of the coming MRS Spring Meeting, Phoenix, USA

2016 Session Chair of the HEMP Workshop, London, UK

2015 General Chair of the HEMP Workshop, London, UK

Organised venue, speakers, catering and general schedule of the event. Raised £3200 from the Institute of Physics and the COST Action Multiscale Solar (MP1406).

2014 Session Chair of the IEEE Photovoltaic Specialist Conference, Denver, USA

2014 Session Chair of the HEMP Workshop, London, UK

2013 Session Chair of the SNEC PV Power Expo, Shanghai, China

### INVITED TALKS

2016 Research Methods in Solar PV, Liverpool, UK

2016 SPIE Photonic West, San Francisco, USA

2013 SNEC PV Power Expo, Shanghai, China

### OUTREACH

2016 Creative Quartier – Imperial College London (~200 people)

Presented the basics of multi-junction solar cells and concentrated photovoltaics

2016 Meet the Scientist – Canal 126 Pub, London (~30 people)

Gave an introductory talk on solar photovoltaics in a “Science-in-the-pub” event

2016 Imperial Festival 2016 – Imperial College London (>2000 people)

Presented the basics of multi-junction solar cells and concentrated photovoltaics

- 2015 Energy Futures Lab 10<sup>th</sup> Anniversary – Imperial College London** (~200 people)  
Presented the research of the Quantum Photovoltaics Group
- 2015 BBC Click episode 31/10/2015**  
Presented the basics and rationale of high efficiency multi-junction solar cells.
- 2015 “Winds of Change” documentary – Imperial College London**  
By Dr. Alex Bak. Contributed to the translation from Spanish of Peruvian interviewees

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REVIEWER

- Regular manuscript reviewer of Optics Express, Energies and Journal of Applied Physics.
- Referee for the IEEE Photovoltaic Specialist Conference in 2014 and 2017.
- Referee for the SNEC PV Power Expo (2013)

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RELEVANT RESEARCH SKILLS

**Modelling and Simulation**

- Proficient in Python and Fortran programming languages and related packages for numerical modeling, analysis and visual representation. Main developer of the Poisson-Drift diffusion solver for solar cells using finite volumes and the 1D 4x4 *kp* solver included in Solcore (v4).
- Experienced in the modelling of electrical circuits using SPICE, including the modelling of the electrical properties of continuous media as a 3D network of discrete electrical components.
- Experienced in the use of Nextnano simulation framework of semiconductor devices, with special emphasis on its application on the electronic properties and strain fields of quantum nanostructures.

**Experimental**

- Experienced on the use of continuous wave and pulsed lasers, including risk assessment and safe utilization practices, maintenance and alignment.
- Experienced on the use and maintenance of vacuum and cryogenic systems.
- Experienced on microfabrication techniques, including: UV lithography, wet chemical etching
- Experienced on spectroscopic characterisation techniques including: photoluminescence, electroluminescence, ellipsometry, FTIR and photocurrent spectroscopy.
- Experienced on the electrical characterisation of semiconductor devices.
- Experienced on a range of materials deposition techniques, including: molecular beam epitaxy, thermal, electron beam and sputtering deposition of metals and oxides.
- Experienced on structural characterisation techniques, including: AFM, SEM, TEM and XRD.

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RELEVANT TRAINING AND COURSES

- **Teaching and support learning skills – Imperial College London: Educational Development Unit**  
Communicating knowledge; Laboratory teaching; Teaching for learning; Setting and marking assessments; Assessing and giving feedback; Teaching and learning for postdocs.
- **Professional development courses – Imperial College London: Postdoc Development Centre**  
Assisting with PhD supervision; Managing your first research group; Time management & personal organisation for postdocs; Planning and managing research projects in academia; Preparing successful fellowship applications.
- **Safety and administration related training – Imperial College London**  
Safety assessment workshop; Cryogenic gases and decanting liquid nitrogen; Radiation protection - X-Ray safety awareness training; Introduction to purchasing.

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PROFESSIONAL MEMBERSHIPS

- **Member of the Society of the Spanish Researchers in the UK (SRUK)** **2016 – present**
- **Affiliate of the Grantham Institute for Climate Change** **2016 – present**
- **Member of the Institute of Electrical and Electronics Engineers (IEEE)** **2008 – present**

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## APPENDIX: LIST OF PUBLICATIONS

### JOURNAL PAPERS

- 26 - **"Mid-infrared emissivity of crystalline silicon solar cells"** A. Riverola-Lacasta, A. Mellor, D. Alonso-Álvarez, L. Ferre Llin, I. Guarracino, A. Ramos Cabal, S. Thoms, C. N. Markides, D. J. Paul, N. J. Ekins-Daukes, and D. Chemisana. In preparation for *Nature Energy* (2017)
- 25 - **"Next generation photovoltaic thermal collectors"** A. Mellor, D. Alonso-Álvarez, I. Guarracino, A. Ramos Cabal, A. Riverola Lacasta, L. Ferre Llin, A. Murrell, Stephen Thoms, D. J. Paul, D. Chemisana, C. N. Markides, N. J. Ekins-Daukes. In preparation for *Energy and Environmental Science*, (2017)
- 24 - **"ITO and AZO films for low emissivity coatings in hybrid photovoltaic-thermal applications"** D. Alonso-Álvarez, L. Ferre Llin, A. Mellor, D. J. Paul and N. Ekins-Daukes. Submitted to *Solar RRL*, (2017)
- 23 - **"Investigation of Carrier Recombination Dynamics of InGaP/InGaAsP Multiple Quantum Wells for Solar Cells via Photoluminescence"** K.-H. Lee, K. W. J. Barnham, John S. Roberts, D. Alonso-Álvarez, N. P. Hylton, M. Führer, N. J. Ekins-Daukes. Submitted to *IEEE Journal of Photovoltaics* (September 2016)
- 22 - **"Optical properties of thick GaInAs(Sb)N layers grown by liquid-phase epitaxy"** V. Donchev, I. Asenova, M. Milanova, D. Alonso-Álvarez, K. Kirilov, N. Shtinkov, I.G. Ivanov, S. Georgiev, E. Valcheva and N. Ekins-Daukes, Accepted in *Journal of Physics: Conference Series* (September 2016)
- 21 - **"Results of the fifth international spectroradiometer comparison for improved solar spectral irradiance measurements and related impact on reference solar cell calibration"** R. Galleano, W. Zaïman, D. Alonso-Álvarez, A. Minuto, N. Ferretti, R. Fucci, M. Pravettoni, M. Halwachs, M. Friederichs, F. Plag, D. Friedrich and E. Harverkamp. *IEEE Journal of Photovoltaics*, **6**, 1587 (2016)
- 20 - **"SPICE Modelling of Photoluminescence and Electroluminescence Based Current-Voltage Curves of Solar Cells for Concentration Applications"** D. Alonso-Álvarez and N. J. Ekins-Daukes, *Journal of Green Engineering*, **5**, 33 (2016)
- 19 - **"Quantum Wire-on-Well (WoW) Cell with Long Carrier Lifetime for Efficient Carrier Transport"** M. Sugiyama, H. Fujii, T. Katoh, K. Toprasertpong, H. Sodabanlu, K. Watanabe, D. Alonso-Álvarez, N. J. Ekins-Daukes and Y. Nakano, *Progress in Photovoltaics: Research and Applications*, **24**, 1606 (2016)
- 18 - **"Absorption Threshold Extended to 1.15 eV Using InGaAs/GaAsP Quantum Wells for Over-50%-efficient Lattice-matched Quad-junction Solar Cells"** K. Toprasertpong, H. Fujii, T. Thomas, M. Führer, D. Alonso-Álvarez, D. J. Farrell, K. Watanabe, Y. Okada, N. J. Ekins-Daukes, M. Sugiyama, and Y. Nakano, *Progress in Photovoltaics: Research and Applications*, **24**, 533 (2016)
- 17 - **"Photoluminescence-based current-voltage characterisation of individual subcells in multi-junction devices"** D. Alonso-Álvarez and N. J. Ekins-Daukes, *IEEE Journal of Photovoltaics*, **6**, 1004 (2016)
- 16 - **"Requirements for a GaAsBi 1 eV sub-cell in a GaAs-based multi-junction solar cell"** T. Thomas, A. Mellor, N. P. Hylton, M. Führer, D. Alonso-Álvarez, A. Braun, N.J. Ekins-Daukes, J.P.R. David, S.J. Sweeney. *Semiconductor Science and Technology*, **30**, 094010 (2015)
- 15 - **"Luminescent down-shifting experiment and modelling with multiple photovoltaic technologies"** D. Alonso-Álvarez, D. Ross, E. Klampaftis, K. R. McIntosh, S. Jia, P. Storiz, T. Stolz, and B. S. Richards. *Progress in Photovoltaics: Research and Applications*, **23**, 479 (2015).
- 14 - **"InGaAs/GaAsP strain balanced multi-quantum wires grown on misoriented GaAs substrates for high efficiency solar cells"** D. Alonso-Álvarez, T. Thomas, M. Führer, N. P. Hylton, N. J. Ekins-Daukes, D. Lackner, S. P. Philipps, A. W. Bett, H. Sodabanlu, H. Fujii, K. Watanabe, M. Sugiyama, L. Nasi and M. Campanini. *Applied Physics Letters* **105**, 083124 (2014)
- 13 - **"External thermalization of carriers with luminescent down shifting for lower operating solar cell temperature"** D. Alonso-Álvarez, D. Ross, E. Klampaftis and B. S. Richards. *IEEE Journal of Photovoltaics*, **4**, 1532 (2014).
- 12 - **"Strain driven migration of In during the growth of InAs/GaAs quantum posts"** D. Alonso-Álvarez, B. Alén, J. M. Ripalda, A. Rivera, A. G. Taboada, J. M. Llorens, Y. González, L. González and F. Briones. *APL Materials*, **1**, 022112 (2013)
- 11 - **"The Impact of Luminescent Down Shifting on the Performance of CdTe Photovoltaics: Impact of the Module Vintage"** D. Ross, D. Alonso-Álvarez, E. Klampaftis, J. Fritsche, M. Bauer, M. J. Debije, B. S. Richards, *IEEE Journal of Photovoltaics*, **4**, 457 (2013)

- 10 - **"Analysis of the 3D distribution of stacked self-assembled quantum dots by electron tomography"** J. Hernández-Saz M. Herrera, D. Alonso-Álvarez and S.I. Molina, *Nanoscale Research Letters*, **7**, 681 (2012)
- 9 - **"Effect of Sb incorporation on the electronic structure of InAs quantum dots"** A. G. Taboada, J.M. Llorens, D. Alonso-Álvarez, B. Alén, A. Rivera, Y. González and J. M. Ripalda, *Physical Review B*, **88**, 085308 (2013)
- 8 - **"Strain balanced epitaxial stacks of quantum dots and quantum posts"** D. Alonso-Álvarez, J. M. Ripalda, B. Alén, J.M. Llorens, F. Briones. *Advanced Materials*, **23**, 5256–5261 (2011)
- 7 - **"Strain balanced quantum posts"** D. Alonso-Álvarez, B. Alén, J. M. Ripalda, J. M. Llorens, A. G. Taboada, Y. González, L. González, F. Briones, M. A. Roldán, J. Hernández-Saz, D. Hernández, M. Herrera and S.I.Molina. *Applied Physics Letters*, **98**, 173106 (2011)
- 6 - **"Epitaxial quantum dots for sunlight harvesting"** D. Alonso-Álvarez, B. Alén and J. M. Ripalda, *Acta Futura*, **4**, 69-80 (2011)
- 5 - **"Theoretical modelling of quaternary GaInAsSb/GaAs self-assembled quantum dots"** J. M. Llorens, A. G. Taboada, J. M. Ripalda, D. Alonso-Álvarez, B. Alén, J. Martín-Sánchez, J. M. García, Y. González, A. M. Sánchez, A. M. Beltrán, P. L. Galindo and S I Molina, *Journal of Physics: Conference Series*, **245**, 012081 (2010)
- 4 - **"Structural changes induced by antimony on InAs/GaAs (001) quantum dots"** A. G. Taboada, A. M. Sánchez, A. M. Beltrán, M. Bozkurt, D. Alonso-Álvarez, B. Alén, A. Rivera, J. M. Ripalda, J.M. Llorens, J. Martín-Sánchez, Y. González, J.M. Ulloa, J. M. García, S. I. Molina, P.M. Koenraad, *Physical Review B*, **82**, 235316 (2010)
- 3 - **"Carrier recombination effects in strain compensated quantum dot stacks embedded in solar cells"** D. Alonso-Álvarez, A. G. Taboada, J. M. Ripalda, B. Alén, Y. González, L. González, J. M. García, F. Briones, A. Martí, A. Luque, A. M. Sánchez and S. I. Molina. *Applied Physics Letters*, **93**, 123114, (2008)
- 2 - **"Optical investigation of type II GaSb/GaAs self-assembled quantum dots"** D. Alonso-Álvarez, B. Alén, Jorge M. García and J. M. Ripalda. *Applied Physics Letters*, **91**, 263103 (2007).
- 1 - **"Enhancement of the room temperature luminescence of InAs quantum dots by GaSb capping"** J. M. Ripalda, D. Alonso-Álvarez, B. Alén, A. G. Taboada, J. M. García, Y. González and L. González, *Applied Physics Letters*, **91**, 012111 (2007)

#### CONFERENCE PROCEEDINGS AND ABSTRACTS

- 12 - **"Specially designed solar cells for hybrid photovoltaic-thermal generators"** A. Mellor, I. Guarracino, L. Ferre Llin, D. Alonso-Álvarez, A. Riverola, S. Thoms, D. J. Paul, C. Markides, D. Chemisana, S. Maier, N. Ekins-Daukes *Proceedings 43th IEEE Photovoltaic Specialist Conference*, New Orleans (USA) (July 2015)
- 11 - **"Preliminary results of the fifth international spectroradiometer comparison for improved solar spectral irradiance measurements"** R. Galleano, W. Zaaiman, D. Alonso-Álvarez, A. Minuto, N. Ferretti, R. Fucci, M. Pravettoni, M. Halwachs, M. Friederichs, F. Plag, D. Friedrich and E. Harverkamp. *Proceedings 32<sup>nd</sup> European Photovoltaic Solar Energy Conference and Exhibition*, Munich (Germany) (20 – 24 June 2010)
- 10 - **"Quantum wells for high efficiency photovoltaics"** D. Alonso-Álvarez and N. J. Ekins-Daukes, *SPIE Photonics West OPTO*, San Francisco (USA) (February 2016) doi:10.1117/12.2217590
- 9 - **"Elements of modelling and design of multi-quantum well solar cells"** Diego Alonso-Álvarez, Markus Führer, Tomos Thomas and Ned Ekins-Daukes, *Proceedings 40th IEEE Photovoltaic Specialist Conference*, Denver (USA) (June 2014), doi:10.1109/PVSC.2014.6925530
- 8 - **"GaNASb 1-eV Solar Cells For Use in Lattice-Matched Multi-Junction Architectures"** Tomos Thomas, Markus Führer, Diego Alonso Alvarez, Ned Ekins-Daukes, Kian Hua Tan, Satrio Wicaksono, Wan Khai Loke, Soon Fatt Yoon, Andrew Johnson, *Proceedings 40th IEEE Photovoltaic Specialist Conference*, Denver (USA) (June 2014), doi:10.1109/PVSC.2014.6924980
- 7 - **"Dual-junction solar cells with multiple-quantum-well top cells"** Lee, Kan-Hua and Barnham, Keith W. J. and Roberts, John S. and Führer, Markus and Alonso-Alvarez, Diego and Ekins-Daukes, N. J., *AIP Conference Proceedings*, 1556, 45-47 (2013)

- 6 - **"First ever full size CdTe luminescent down-shifting module"** D. Ross, D. Alonso-Álvarez, J. Fritsche, M. Bauer, M. G. Debije, R. M. Fifield, and B. S. Richards, *Proceedings 38th IEEE Photovoltaic Specialist Conference*, Austin (USA) (3-8 June 2012), doi: 10.1109/PVSC.2012.6317984
- 5 - **"Performance of luminescence down shifting for CdTe solar cells as a function of the incident solar spectrum"** D. Alonso-Álvarez, D. Ross, K. R. McIntosh and B. S. Richards, *Proceedings 38th IEEE Photovoltaic Specialist Conference*, Austin (USA) (3-8 June 2012), doi: 10.1109/PVSC.2012.6318103
- 4 - **"Luminescent down-shifting for CdTe solar cells: A review of dyes and simulation of performance"** D. Alonso-Álvarez, D. Ross, and B. S. Richards, *Proceedings 38th IEEE Photovoltaic Specialist Conference*, Austin (USA) (3-8 June 2012), doi: 10.1109/PVSC.2012.6317557
- 3 - **"Strain issues in stress compensated quantum dots for intermediate band solar cells"** D. Alonso-Álvarez, J. M. Ripalda, B. Alén, A. Rivera, A. G. Taboada, J. M. Llorens, Y. González, L. González, F. Briones. *Proceedings 25th European Photovoltaic Solar Energy Conference and Exhibition*, Valencia (Spain) (6-10 September 2010)
- 2 - **"Strain balanced quantum posts for intermediate band solar cells"** D. Alonso-Álvarez, B. Alén, J. M. Ripalda, A. G. Taboada, J. M. Llorens, Y. González, L. González, F. Briones, E. Antolín, I. Ramirez, A. Martí, A. Luque, M. A. Roldán, J. Hernandez-Saz, M. Herrera and S.I.Molina. *Proceedings 35th IEEE Photovoltaic Specialist Conference*, Honolulu (USA) (20-25 June 2010), doi: 10.1109/PVSC.2010.5614557
- 1 - **"Stress compensation by GaP monolayers for stacked InAs/GaAs quantum dots solar cells"** D. Alonso-Álvarez, A. G. Taboada, Y. González, J. M. Ripalda, B. Alén, L. González, J. M. García, F. Briones, A. Martí, A. Luque, A. M. Sánchez and S. I. Molina. *Proceedings 33rd IEEE Photovoltaic Specialist Conference*, San Diego (USA) (11-16 May 2008), doi: 10.1109/PVSC.2008.4922519

#### PARTICIPATION IN CONFERENCES

##### ORAL PRESENTATIONS

- 9 - **"Multi-junction solar cells and solar concentrators"** D. Alonso-Álvarez, Research Methods in Solar PV, Liverpool (UK) (April 2016)  
- *Invited Talk*
- 8 - **"Quantum wells for high efficiency photovoltaics"** D. Alonso-Álvarez and N. J. Ekins-Daukes, SPIE Photonics West OPTO, San Francisco (USA) (February 2016)  
- *Invited Talk*
- 7 - **"Photo-charging effects in deep multi-quantum wells and wires solar cells"**, D. Alonso-Álvarez, M. Fuhrer, T. Thomas, N. P. Hylton, D. Lackner, S. P. Philipps, A. W. Bett, M. Sugiyama and N. J. Ekins-Daukes. 6<sup>th</sup> World Conference on Photovoltaic Energy conversion, Kyoto, November 24-28 (2014)
- 6 **"Quantum nanostructures in photovoltaics"**, D. Alonso-Álvarez and N. Ekins-Daukes. SNEC 7th International Power Generation Conference and Exhibition, Shanghai, May 14-17 (2013)  
- *Invited Talk*
- 5 - **"Strain balanced technique for the growth of very high aspect ratio quantum posts"** D. Alonso-Álvarez, B. Alén, J. M. Ripalda, J. Llorens, A. G. Taboada, Y. González, L. González, F. Briones, M. A. Roldán, J. Hernández-Saz, M. Herrera, and S. I. Molina. EuroMBE 2011, L'Alpe d'Huez, Francia (20-24 March 2011)
- 4 - **"Strain balanced quantum posts for intermediate band solar cells"** D. Alonso-Álvarez, B. Alén, J. M. Ripalda, A. G. Taboada, J. M. Llorens, Y. González, L. González, F. Briones, E. Antolín, I. Ramirez, A. Martí, A. Luque, M. A. Roldán, J. Hernandez-Saz, M. Herrera and S. I. Molina. 35th IEEE Photovoltaic Specialist Conference, Honolulu (USA) (20-25 June 2010)
- 3 - **"Epitaxial growth of strain balanced semiconductor nanostructures for solar cells"** D. Alonso-Álvarez, J. M. Ripalda, B. Alén, A. Rivera, A. G. Taboada, J. M. Llorens, Y. González, L. González, F. Briones. Nanoscale devices for environmental and energy applications (NDEEA10), San Sebastian (Spain) (26-27 April 2010)
- 2 - **"Compacting InAs/GaAs quantum dots layers by GaP strain compensation for photovoltaic applications"** D. Alonso-Álvarez, A. G. Taboada, Y. González, J. M. Ripalda, B. Alén, L. González, F. Briones, A. Martí, A. Luque, A. M. Sánchez and S.I. Molina. Workshop on Recent Advances of Low Dimensional Structures and Devices, Nottingham, United Kingdom (April 2008)

- 1 - **"Photodetector applications of InAsSb/GaAs self-assembled quantum dots"** D. Alonso-Álvarez, A. G. Taboada, B. Alén, J. M. Ripalda, D. Granados and J. M. García. 6<sup>a</sup> Conferencia de dispositivos electrónicos. CDE 2007, El Escorial, Spain (February 2007)

#### POSTERS

- 8 - **"Photoluminescence-based current-voltage characterisation of individual subcells in multi-junction devices"** D. Alonso-Álvarez, D. Lackner, S. P. Philipps, A. W. Bett and N. J. Ekins-Daukes, 31st European Photovoltaic Solar Energy Conference and Exhibition, Hamburg (Germany) (September 2015)
- 7 - **"Elements of modelling and design of multi-quantum well solar cells"** Diego Alonso-Álvarez, Markus Führer, Tomos Thomas and Ned Ekins-Daukes, Proceedings 40th IEEE Photovoltaic Specialist Conference, Denver (USA) (June 2014)
- 6 - **"Performance of luminescence down shifting for CdTe solar cells as a function of the incident solar spectrum"** D. Alonso-Álvarez, D. Ross, Keith R. McIntosh and Bryce S. Richards, 38th IEEE Photovoltaic Specialist Conference, Austin, TX (USA) (3-8 June 2012)
- 5 - **"Luminescent down-shifting for CdTe solar cells: A review of dyes and simulation of performance"** D. Alonso-Álvarez, D. Ross and Bryce S. Richards, 38th IEEE Photovoltaic Specialist Conference, Austin, TX (USA) (3-8 June 2012)  
- **Best Poster Award**
- 4 - **"Strain issues in stress compensated quantum dots for intermediate band solar cells"** D. Alonso-Álvarez, J. M. Ripalda, B. Alén, A. Rivera, A. G. Taboada, J. M. Llorens, Y. González, L. González, F. Briones. 25th European Photovoltaic Solar Energy Conference and Exhibition, Valencia (Spain) (6-10 September 2010)
- 3 - **"Stress compensation by GaP monolayers for stacked InAs/GaAs quantum dots solar cells"** D. Alonso-Álvarez, A. G. Taboada, Y. González, J. M. Ripalda, B. Alén, L. González, Jorge M. García, F. Briones, A. Martí, A. Luque, A. M. Sánchez and S.I. Molina. 33rd IEEE Photovoltaic Specialists Conference, San Diego, (EEUU) May 2008.
- 2 - **"Absorption Properties on InAs quantum dots with Ga(As)Sb capping"** D. Alonso-Álvarez, B. Alén, J. M. Ripalda, A. G. Taboada, J. M. García. Long Wavelength Quantum Dots. LWQD 2007, Rennes (France) July 2007.
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