



1981-2006

At Isofotón, R+D is a strategic axis of growth. With its constant increase in potential, it contributes to generating knowledge, in a way which places this technology at the service of society.



6.7 PRESENTATION OF INNOVATIONS TO THE SCIENTIFIC COMMUNITY

As a result of Isofoton's activity, **the company is present in numerous forums of the scientific community related to Solar Energy.** Proof of this are the numerous publications and papers produced in conferences around the world, which respond to the Ambassador Plan of Isofoton, which went into effect three years ago. Those that stand out from 2006 are the following:

- “Daily power output increase of over 3% with the use of structured glass in monocrystalline silicon PV modules”: P. Sánchez-Friera, D. Montiel, J.F. Gil, J.A. Montañez, J. Alonso. 4th World Conference on Photovoltaic Energy Conversion (Hawaii 2006).
- “Epitaxial solar cells over upgraded metallurgical silicon substrates: the epimetsi project”: P. Sánchez-Friera, L.J. Caballero, J. Alonso. 4th World Conference on Photovoltaic Energy Conversion (Hawaii 2006).
- “Series resistance modelling of industrial screen-printed monocrystalline silicon solar cells and modules including the effect of spot soldering”: L.J. Caballero, P. Sánchez-Friera, B. Lalaguna, J. Alonso, M.A. Vázquez. 4th World Conference on Photovoltaic Energy Conversion (Hawaii 2006).
- “Industrial implementation of epitaxial solar cells over low-grade silicon substrates”: L.J. Caballero, P. Sánchez-Friera, C. Vázquez, M.A. Vázquez, J. Alonso, F. Duerinckx, K. Van Nieuwenhuysen, G. Beaucarne, J. Poortmans. 13th IEEE Mediterranean Electrotechnical Conference (Málaga 2006).
- “Photovoltaic module design for a solar race car”: P. Sánchez-Friera, F. Farré, B. Lalaguna, C. Vázquez, J. Alonso, M. Fernández. 21st European Photovoltaic Solar Energy Conference and Exhibition (Dresden 2006).
- “Epitaxial solar cells over low-grade silicon substrates semimanufactured in an industrial environment”: L.J. Caballero, P. Sánchez-Friera, C. Vázquez, A. Martínez Tenor, D. Díaz, J. Alonso, M.A. Vázquez, F. Duerinckx, K. Van Nieuwenhuysen, G. Beaucarne. 21st European Photovoltaic Solar Energy Conference and Exhibition (Dresden 2006).
- “Module interconnection with alternate p- and n-type Si solar cells”: R. Kopecek, T. Buck, A. Kränzl, J. Libal, K. Peter, A. Schneider, P. Sánchez-Friera, I. Röver, K. Wambach, P. Fath, E. Wefringhaus. 21st European Photovoltaic Solar Energy Conference and Exhibition (Dresden 2006).
- “N-type solar grade silicon for efficient p+n solar cells: overview and main results of the ec nessi project”: L.J. Geerligs, C.J.J. Tool, R. Kinderman, I. Röver, K. Wambach, R. Kopecek, T. Buck, J. Libal, R. Petres, P. Fath, P. Sánchez-Friera, J. Alonso, M. Acciarri, S. Binetti, S. Pizzini. 21st European Photovoltaic Solar Energy Conference and Exhibition (Dresden 2006).
- “Spectral characterization of concentrator lenses”: C. Domínguez, I. Antón, G. Sala, J.L. Álvarez, V. Díaz. 21th European Photovoltaic Solar Energy Conference and Exhibition (Dresden 2006).
- “Test strategies for mass production of lenses in high concentration PV systems”: J. L. Álvarez, J. Cabrera, V. Díaz. 4th World Conference and Exhibition on Photovoltaic Solar Energy Conversion (Hawaii 2006).
- “Industrialization of 1000X concentration photovoltaic modules”: J. L. Álvarez, J. Cabrera, V. Díaz, C. Mateos, N. Montoya, J. Alonso. Proceedings SPIE Photonics Europe (France 2006).

In addition to the intense disclosure through R+D efforts, the following articles about innovation in engineering were also published:

- M.A. Castro, E. Lorenzo, O. Perpiñán: “Análisis y comparación de funcionamiento de grandes plantas: Photocampa y Forum”. *Energía*, 190, Jan./Feb., 63-68, 2006.
- M.A. Castro, E. Lorenzo, O. Perpiñán: “Planta Fotovoltaica de Conexión a Red: estimación de sombras mutuas entre seguidores y optimización de separaciones”. *Era Solar*, 131 Mar./Apr., 28-35, 2006.
- O. Perpiñán, E. Lorenzo, M. A. Castro: “On the calculation of energy produced by a PV grid-connected system”. *Progress in Photovoltaics*, 265-274, Published Online: 27 Sep. 2006.
- O. Perpiñán: “Energía Solar Fotovoltaica”. *Guía de Ahorro Energético en Comercios de Alimentación, Comunidad de Madrid*, Cap. 6, 179-194, 2006.