PUBBLICAZIONE, AI SENSI DELL'ART. 19 DEL D.LGS N. 33 DEL 14 MARZO 2013, MODIFICATO DALL'ART. 18 DEL D.LGS N. 97 DEL 25 MAGGIO 2016 COME INTEGRATO DALL'ART.1 C. 145 DELLA LEGGE 27 DICEMBRE 2019 N. 160, DEI QUESITI STABILITI DALLA COMMISSIONE ESAMINATRICE DEL CONCORSO DI SEGUITO INDICATO NELLA RIUNIONE IN DATA - 18 DICEMBRE 2023

BANDO N. 400.7 IMEM PNRR

Selezione per titoli e colloquio ai sensi dell'art. 8 del "Disciplinare concernente le assunzioni di personale con contratto di lavoro a tempo determinato", per l'assunzione, ai sensi dell'art. 83 del CCNL del Comparto "Istruzione e Ricerca" 2016-2018, sottoscritto in data 19 aprile 2018, di una unità di personale con profilo professionale di Ricercatore III livello, presso l'Istituto dei Materiali per Elettronica e Magnetismo (CNR-IMEM)- sede di Parma (CUP B53C22004060006)

FOGLIO ESTRATTO = A

1.The candidate should describe their research activities and publications in relation tothe themes and experiences required by the call.

2.The candidate should describe the deposition of inorganic materials films usingvacuum techniques.

3.The candidate should read and translate the following sentences:
On the theoretical side, the limiting efficiency of single-junction solar cells was first calculated in a seminal paper by Shockley and Queisser by a thermodynamic treatment that assumes detailed balance. The main assumptions are that all the light above the semiconductor bandgap is absorbed, and that the excited electron-hole pairs can only decay by radiative recombination.
Tratto da: "Silicon solar cells: toward the efficiency limits" - doi.org/10.1080/23746149.2018.1548305

FOGLIO ESTRATTO = C

1. The candidate should describe their research activities and publications in relation to the themes and experiences required by the call.

2. The candidate should describe devices based on inorganic semiconductors for applications in the photovoltaic sector and their structural and optical characterization.

3. The candidate should read and translate the following sentences:
When considering light trapping in a wide range of thickness, say from ~1 to 200 μm, it is important to employ optical structures whose design is weakly dependent on thickness. The Gaussian disorder is defined by two parameters – the root mean square (RMS) height of the roughness and the in-plane correlation length – which can be optimized and yield a random structure approaching the Lambertian light trapping in a wide range of thicknesses.
Tratto da: "Silicon solar cells: toward the efficiency limits" - doi.org/10.1080/23746149.2018.1548305

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FOGLIO NON ESTRATTO = B

1. The candidate should describe their research activities and publications in relation to the themes and experiences required by the call.

2. The candidate should describe the main materials used for applications in the photovoltaic sector and their structural and optical characterization.

3. The candidate should read and translate the following sentences:
A properly designed solar cell has to be optically thick (i.e. to absorb all or most of the incident sunlight) and electronically thin (i.e. to collect the photoexcited electron-hole pairs with little or no losses). These two requirements lead to an optimal thickness that maximizes the efficiency. Thus, in order to understand the limiting efficiency, we need to tackle both the *optical* and the *electronic* problem.
Tratto da: "Silicon solar cells: toward the efficiency limits" - doi.org/10.1080/23746149.2018.1548305

FOGLIO NON ESTRATTO = D

1. The candidate should describe their research activities and publications in relation to the themes and experiences required by the call.

2. The candidate should describe heterojunction solar cells, their applications in the photovoltaic sector, and their structural and optical characterization.

3. The candidate should read and translate the following sentences:
The efficiency limits of c-Si solar cells can be calculated by assuming Lambertian light trapping and by neglecting defect-related recombinations. The limiting efficiency including Auger recombination is ~29% and it occurs for 80-µm thickness, with a broad maximum. The three approaches to the electronic transport properties agree well with each other as long as surface recombination is neglected.
Tratto da: "Silicon solar cells: toward the efficiency limits" - doi.org/10.1080/23746149.2018.1548305

IL PRESIDENTE

Prof. Alessio Bosio

LA SEGRETARIA

Dr.ssa Michela Janni

Michela Janni
20.12.2023
12:46:21
GMT+01:00

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