Fiacre Emile Rougieux

List of Publications by Year
in descending order

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75 papers	1,368 citations	331259 21 h-index	377514 34 g-index
75 all docs	75 docs citations	75 times ranked	856 citing authors

#	Article	IF	Citations
1	Photoluminescence Spectroscopy of Thermal Donors and Oxygen Precipitates Formed in Czochralski Silicon at 450 Â°C. IEEE Journal of Photovoltaics, 2022, 12, 222-229.	1.5	1
2	Constraints imposed by the sparse solar photon flux on upconversion and hot carrier solar cells. Solar Energy, 2022, 237, 44-51.	2.9	2
3	The Role of Charge and Recombinationâ€Enhanced Defect Reaction Effects in the Dissociation of FeB Pairs in pâ€Type Silicon under Carrier Injection. Physica Status Solidi - Rapid Research Letters, 2021, , 2000520.	1.2	1
4	Ringâ€Like Defect Formation in Nâ€Type Czochralskiâ€Grown Silicon Wafers during Thermal Donor Formation. Physica Status Solidi (A) Applications and Materials Science, 2021, 218, 2000587.	0.8	8
5	On the Correlation between Light-Induced Degradation and Minority Carrier Traps in Boron-Doped Czochralski Silicon. ACS Applied Materials & Interfaces, 2021, 13, 6140-6146.	4.0	3
6	The Mechanism of Surface Passivation Degradation in SiO₂/SiN_x Stack Under Light and Elevated Temperature. IEEE Journal of Photovoltaics, 2021, 11, 1380-1387.	1.5	2
7	Electrical Characterization of Thermally Activated Defects in n-Type Float-Zone Silicon. IEEE Journal of Photovoltaics, 2021, 11, 26-35.	1.5	8
8	Photoconductance Determination of Carrier Capture Cross Sections of Slow Traps in Silicon Through Variable Pulse Filling. IEEE Journal of Photovoltaics, 2021, 11, 273-281.	1.5	4
9	Electronic Properties of the Boron-oxygen Defect Precursor in Silicon. , 2021, , .		0
10	Hydrogen-induced degradation: Explaining the mechanism behind light- and elevated temperature-induced degradation in n- and p-type silicon. Solar Energy Materials and Solar Cells, 2020, 207, 110353.	3.0	52
11	Impact of pre-fabrication treatments on n-type UMG wafers for 21% efficient silicon heterojunction solar cells. Solar Energy Materials and Solar Cells, 2020, 205, 110287.	3.0	10
12	Light-induced-degradation defect independent of the boron concentration: Towards unifying admittance spectroscopy, photoluminescence and photoconductance lifetime spectroscopy results. Solar Energy Materials and Solar Cells, 2020, 210, 110481.	3.0	2
13	Design of Ultrathin InP Solar Cell Using Carrier Selective Contacts. IEEE Journal of Photovoltaics, 2020, 10, 1657-1666.	1.5	18
14	Onset of ring defects in n-type Czochralski-grown silicon wafers. Journal of Applied Physics, 2020, 127, .	1.1	7
15	Boron-oxygen related light-induced degradation of Si solar cells: Transformation between minority carrier traps and recombination active centers. , 2020, , .		1
16	Defect luminescence from thermal donors in silicon: impact of dopant type and thermal donor concentration. , 2020, , .		2
17	The Boron-Oxygen Defect: Does its Concentration Really Depends on the Boron/Dopant Concentration?. , 2020, , .		0
18	Contactless transient carrier spectroscopy and imaging technique using lock-in free carrier emission and absorption. Scientific Reports, 2019, 9, 14268.	1.6	2

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19	New insights into the thermally activated defects in n-type float-zone silicon. AIP Conference Proceedings, 2019, , .	0.3	13
20	Kinetics and dynamics of the regeneration of boron-oxygen defects in compensated n-type silicon. Solar Energy Materials and Solar Cells, 2019, 195, 174-181.	3.0	5
21	Accurate defect recombination parameters: what are the limitations of current analyses?. , 2018, , .		0
22	An Open Source Based Repository For Defects in Silicon. , 2018, , .		5
23	Ring defects in n-type Czochralski-grown silicon: A high spatial resolution study using Fourier-transform infrared spectroscopy, micro-photoluminescence, and micro-Raman. Journal of Applied Physics, 2018, 124, 243101.	1.1	14
24	Impact of Tabula Rasa and Phosphorus Diffusion Gettering on 21% Heterojunction Solar Cells Based on n-Type Czochralski-Grown Upgrade Metallurgical-Grade Silicon. , 2018, , .		1
25	Indium phosphide based solar cell using ultra-thin ZnO as an electron selective layer. Journal Physics D: Applied Physics, 2018, 51, 395301.	1.3	28
26	Determining the charge states and capture mechanisms of defects in silicon through accurate recombination analyses: A review. Solar Energy Materials and Solar Cells, 2018, 187, 263-272.	3.0	31
27	Methods to Improve Bulk Lifetime in n-Type Czochralski-Grown Upgraded Metallurgical-Grade Silicon Wafers. IEEE Journal of Photovoltaics, 2018, 8, 990-996.	1.5	25
28	Activation Kinetics of the Boronâ€“oxygen Defect in Compensated n- and p-type Silicon Studied by High-Injection Micro-Photoluminescence. IEEE Journal of Photovoltaics, 2017, 7, 988-995.	1.5	6
29	Growth of Oxygen Precipitates and Dislocations in Czochralski Silicon. IEEE Journal of Photovoltaics, 2017, 7, 735-740.	1.5	12
30	Precipitation of Cu and Ni in n- and p-type Czochralski-grown silicon characterized by photoluminescence imaging. Journal of Crystal Growth, 2017, 460, 98-104.	0.7	5
31	Carrier induced degradation in compensated n-type silicon solar cells: Impact of light-intensity, forward bias voltage, and temperature on the reaction kinetics. Japanese Journal of Applied Physics, 2017, 56, 08MB23.	0.8	4
32	21.1% UMG Silicon Solar Cells. IEEE Journal of Photovoltaics, 2017, 7, 58-61.	1.5	19
33	Permanent annihilation of thermally activated defects which limit the lifetime of floatâ€zone silicon. Physica Status Solidi (A) Applications and Materials Science, 2016, 213, 2844-2849.	0.8	69
34	High efficiency UMG silicon solar cells: impact of compensation on cell parameters. Progress in Photovoltaics: Research and Applications, 2016, 24, 725-734.	4.4	19
35	Upgraded metallurgical-grade silicon solar cells with efficiency above 20%. Applied Physics Letters, 2016, 108, .	1.5	23
36	Characterization of Cu and Ni Precipitates in nâ€“ and p-type Czochralski-grown Silicon by Photoluminescence. Energy Procedia, 2016, 92, 880-885.	1.8	1

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37	Simulation of 20.96% Efficiency n-type Czochralski UMG Silicon Solar Cell. Energy Procedia, 2016, 92, 434-442.	1.8	3
38	Reassessment of the recombination properties of aluminiumâ€“oxygen complexes in nâ€•and pâ€•type Czochralskiâ€grown silicon. Physica Status Solidi (B): Basic Research, 2016, 253, 2079-2084.	0.7	6
39	Thermal activation and deactivation of grownâ€in defects limiting the lifetime of floatâ€zone silicon. Physica Status Solidi - Rapid Research Letters, 2016, 10, 443-447.	1.2	82
40	Characterizing amorphous silicon, silicon nitride, and diffused layers in crystalline siliconsolarcellsusingmicro-photoluminescence spectroscopy. Solar Energy Materials and Solar Cells, 2016, 145, 403-411.	3.0	18
41	Lifetime Spectroscopy and Hydrogenation of Chromium in n- and p-type Cz Silicon. Energy Procedia, 2015, 77, 646-650.	1.8	2
42	Effects of Solar Cell Processing Steps on Dislocation Luminescence in Multicrystalline Silicon. Energy Procedia, 2015, 77, 619-625.	1.8	7
43	Charge states of the reactants in the hydrogen passivation of interstitial iron in P-type crystalline silicon. Journal of Applied Physics, 2015, 118, .	1.1	9
44	Can vacancies and their complexes with nonmetals prevent the lifetime reaching its intrinsic limit in silicon?. , 2015, , .		2
45	A unified approach to modelling the charge state of monatomic hydrogen and other defects in crystalline silicon. Journal of Applied Physics, 2015, 117, .	1.1	69
46	Micrometer-Scale Deep-Level Spectral Photoluminescence From Dislocations in Multicrystalline Silicon. IEEE Journal of Photovoltaics, 2015, 5, 799-804.	1.5	29
47	Influence of Annealing and Bulk Hydrogenation on Lifetime-Limiting Defects in Nitrogen-Doped Floating Zone Silicon. IEEE Journal of Photovoltaics, 2015, 5, 495-498.	1.5	28
48	Impact of Carrier Profile and Rear-Side Reflection on Photoluminescence Spectra in Planar Crystalline Silicon Wafers at Different Temperatures. IEEE Journal of Photovoltaics, 2015, 5, 77-81.	1.5	15
49	Evidence for Vacancy-Related Recombination Active Defects in as-Grown N-Type Czochralski Silicon. IEEE Journal of Photovoltaics, 2015, 5, 183-188.	1.5	9
50	Impact of Grown-in Point-defects on the Minority Carrier Lifetime in Czochralski-grown Silicon Wafers. Energy Procedia, 2014, 60, 81-84.	1.8	3
51	Contactless determination of the carrier mobility sum in silicon wafers using combined photoluminescence and photoconductance measurements. Applied Physics Letters, 2014, 104, .	1.5	4
52	Temperature dependence of the band-band absorption coefficient in crystalline silicon from photoluminescence. Journal of Applied Physics, 2014, 115, .	1.1	80
53	Reassessment of the recombination parameters of chromium in n- and p-type crystalline silicon and chromium-boron pairs in p-type crystalline silicon. Journal of Applied Physics, 2014, 115, 214907.	1.1	29
54	Impact of compensation on the boron and oxygen-related degradation of upgraded metallurgical-grade silicon solar cells. Solar Energy Materials and Solar Cells, 2014, 120, 390-395.	3.0	22

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55	Reading data stored in the state of metastable defects in silicon using band-band photoluminescence: Proof of concept and physical limits to the data storage density. Applied Physics Letters, 2014, 104, 124103.	1.5	1
56	Measurement and Parameterization of Carrier Mobility Sum in Silicon as a Function of Doping, Temperature and Injection Level. IEEE Journal of Photovoltaics, 2014, 4, 560-565.	1.5	6
57	Boron-oxygen defect imaging in p-type Czochralski silicon. Applied Physics Letters, 2013, 103, .	1.5	22
58	Incomplete Ionization and Carrier Mobility in Compensated p -Type and n-Type Silicon. IEEE Journal of Photovoltaics, 2013, 3, 108-113.	1.5	18
59	Thermal deactivation of lifetimeâ€limiting grownâ€in point defects in nâ€type Czochralski silicon wafers. Physica Status Solidi - Rapid Research Letters, 2013, 7, 616-618.	1.2	13
60	Boron-oxygen defect in Czochralski-silicon co-doped with gallium and boron. Applied Physics Letters, 2012, 100, .	1.5	45
61	Iron-rich particles in heavily contaminated multicrystalline silicon wafers and their response to phosphorus gettering. Semiconductor Science and Technology, 2012, 27, 125016.	1.0	12
62	Impact of incomplete ionization of dopants on the electrical properties of compensated p-type silicon. Journal of Applied Physics, 2012, 111, .	1.1	25
63	A Contactless Method for Determining the Carrier Mobility Sum in Silicon Wafers. IEEE Journal of Photovoltaics, 2012, 2, 41-46.	1.5	15
64	Compensation Engineering for Silicon Solar Cells. Energy Procedia, 2012, 15, 67-77.	1.8	19
65	Recombination Activity and Impact of the Boronâ€“Oxygen-Related Defect in Compensated N-Type Silicon. IEEE Journal of Photovoltaics, 2011, 1, 54-58.	1.5	22
66	Transport properties of pâ€type compensated silicon at room temperature. Progress in Photovoltaics: Research and Applications, 2011, 19, 787-793.	4.4	15
67	Formation kinetics and extent of the boron oxygen defect in compensated n-type silicon. , 2011, , .		1
68	Influence of net doping, excess carrier density and annealing on the boron oxygen related defect density in compensated n-type silicon. Journal of Applied Physics, 2011, 110, 063708.	1.1	43
69	Accurate measurement of the formation rate of ironâ€“boron pairs in silicon. Semiconductor Science and Technology, 2011, 26, 055019.	1.0	25
70	Scanning Xâ€ray fluorescence microspectroscopy of metallic impurities in solarâ€grade silicon. Physica Status Solidi (A) Applications and Materials Science, 2010, 207, 1807-1810.	0.8	8
71	Characteristics of an oxidation-induced inversion layer in compensated p-type crystalline silicon. Semiconductor Science and Technology, 2010, 25, 055009.	1.0	1
72	Generation and annihilation of boronâ€“oxygen-related recombination centers in compensated p- and n-type silicon. Journal of Applied Physics, 2010, 108, .	1.1	71

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73	Electron and hole mobility reduction and Hall factor in phosphorus-compensated p-type silicon. Journal of Applied Physics, 2010, 108, 013706.	1.1	50
74	Light-induced boron-oxygen defect generation in compensated p-type Czochralski silicon. Journal of Applied Physics, 2009, 105, .	1.1	123
75	Low Temperature Activation of Grown-In Defects Limiting the Lifetime of High Purity <i>n</i>-Type Float-Zone Silicon Wafers. Solid State Phenomena, 0, 242, 120-125.	0.3	13