Fiacre Emile Rougieux

List of Publications by Year
in descending order

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	Light-induced boron-oxygen defect generation in compensated p-type Czochralski silicon. Journal of Applied Physics, 2009, 105, .	1.1	123
2	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
3	Temperature dependence of the band-band absorption coefficient in crystalline silicon from photoluminescence. Journal of Applied Physics, 2014, 115, .	1.1	80
4	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
5	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
6	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
7	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
8	Electron and hole mobility reduction and Hall factor in phosphorus-compensated p-type silicon. Journal of Applied Physics, 2010, 108, 013706.	1.1	50
9	Boron-oxygen defect in Czochralski-silicon co-doped with gallium and boron. Applied Physics Letters, 2012, 100, .	1.5	45
10	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
11	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
12	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
13	Micrometer-Scale Deep-Level Spectral Photoluminescence From Dislocations in Multicrystalline Silicon. IEEE Journal of Photovoltaics, 2015, 5, 799-804.	1.5	29
14	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
15	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
16	Impact of incomplete ionization of dopants on the electrical properties of compensated <i>p</i>-type silicon. Journal of Applied Physics, 2012, 111, .	1.1	25
17	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
18	Accurate measurement of the formation rate of ironâ€“boron pairs in silicon. Semiconductor Science and Technology, 2011, 26, 055019.	1.0	25

#	Article	IF	Citations
19	Upgraded metallurgical-grade silicon solar cells with efficiency above 20%. Applied Physics Letters, 2016, 108, .	1.5	23
20	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
21	Boron-oxygen defect imaging in p-type Czochralski silicon. Applied Physics Letters, 2013, 103, .	1.5	22
22	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
23	Compensation Engineering for Silicon Solar Cells. Energy Procedia, 2012, 15, 67-77.	1.8	19
24	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
25	21.1% UMG Silicon Solar Cells. IEEE Journal of Photovoltaics, 2017, 7, 58-61.	1.5	19
26	Incomplete Ionization and Carrier Mobility in Compensated p -Type and n-Type Silicon. IEEE Journal of Photovoltaics, 2013, 3, 108-113.	1.5	18
27	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
28	Design of Ultrathin InP Solar Cell Using Carrier Selective Contacts. IEEE Journal of Photovoltaics, 2020, 10, 1657-1666.	1.5	18
29	Transport properties of pâ€type compensated silicon at room temperature. Progress in Photovoltaics: Research and Applications, 2011, 19, 787-793.	4.4	15
30	A Contactless Method for Determining the Carrier Mobility Sum in Silicon Wafers. IEEE Journal of Photovoltaics, 2012, 2, 41-46.	1.5	15
31	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
32	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
33	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
34	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
35	New insights into the thermally activated defects in n-type float-zone silicon. AIP Conference Proceedings, 2019, , .	0.3	13
36	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

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37	Growth of Oxygen Precipitates and Dislocations in Czochralski Silicon. IEEE Journal of Photovoltaics, 2017, 7, 735-740.	1.5	12
38	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
39	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
40	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
41	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
42	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
43	Electrical Characterization of Thermally Activated Defects in n-Type Float-Zone Silicon. IEEE Journal of Photovoltaics, 2021, 11, 26-35.	1.5	8
44	Effects of Solar Cell Processing Steps on Dislocation Luminescence in Multicrystalline Silicon. Energy Procedia, 2015, 77, 619-625.	1.8	7
45	Onset of ring defects in n-type Czochralski-grown silicon wafers. Journal of Applied Physics, 2020, 127, .	1.1	7
46	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
47	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
48	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
49	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
50	An Open Source Based Repository For Defects in Silicon. , 2018, , .		5
51	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
52	Contactless determination of the carrier mobility sum in silicon wafers using combined photoluminescence and photoconductance measurements. Applied Physics Letters, 2014, 104, .	1.5	4
53	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
54	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

#	Article	IF	Citations
55	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
56	Simulation of 20.96% Efficiency n-type Czochralski UMG Silicon Solar Cell. Energy Procedia, 2016, 92, 434-442.	1.8	3
57	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
58	Lifetime Spectroscopy and Hydrogenation of Chromium in n- and p-type Cz Silicon. Energy Procedia, 2015, 77, 646-650.	1.8	2
59	Can vacancies and their complexes with nonmetals prevent the lifetime reaching its intrinsic limit in silicon?. , 2015, , .		2
60	Contactless transient carrier spectroscopy and imaging technique using lock-in free carrier emission and absorption. Scientific Reports, 2019, 9, 14268.	1.6	2
61	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
62	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
63	Defect luminescence from thermal donors in silicon: impact of dopant type and thermal donor concentration. , 2020, , .		2
64	Constraints imposed by the sparse solar photon flux on upconversion and hot carrier solar cells. Solar Energy, 2022, 237, 44-51.	2.9	2
65	Characteristics of an oxidation-induced inversion layer in compensated p-type crystalline silicon. Semiconductor Science and Technology, 2010, 25, 055009.	1.0	1
66	Formation kinetics and extent of the boron oxygen defect in compensated n-type silicon. , 2011, , .		1
67	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
68	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
69	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
70	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
71	Boron-oxygen related light-induced degradation of Si solar cells: Transformation between minority carrier traps and recombination active centers. , 2020, , .		1
72	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

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73	Accurate defect recombination parameters: what are the limitations of current analyses?. , 2018, , .		0
74	Electronic Properties of the Boron-oxygen Defect Precursor in Silicon. , 2021, , .		0
75	The Boron-Oxygen Defect: Does its Concentration Really Depends on the Boron/Dopant Concentration?. , 2020, , .		0