

# Gerard Louis Vignoles

## List of Publications by Year in descending order

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128  
papers

2,925  
citations

159585

30  
h-index

214800

47  
g-index

138  
all docs

138  
docs citations

138  
times ranked

2205  
citing authors

#	ARTICLE	IF	CITATIONS
1	Low pressure gas transfer in fibrous media with progressive infiltration: correlation between different transfer modes. <i>International Journal of Heat and Mass Transfer</i> , 2022, 182, 121954.	4.8	7
2	Chemical Supercritical Fluid Infiltration of Pyrocarbon with Thermal Gradients: Deposition Kinetics and Multiphysics Modeling. <i>Journal of Composites Science</i> , 2022, 6, 20.	3.0	1
3	Mechanisms of elastic softening in highly anisotropic carbons under in-plane compression/indentation. <i>Carbon</i> , 2022, 197, 425-434.	10.3	5
4	Computation of the conducto-radiative effective heat conductivity of porous media defined by Triply Periodic Minimal Surfaces. <i>International Journal of Thermal Sciences</i> , 2021, 159, 106598.	4.9	11
5	High-flux sublimation of a 3D carbon/carbon composite: Surface roughness patterns. <i>Carbon</i> , 2021, 173, 817-831.	10.3	14
6	Complex geometry macroporous SiC ceramics obtained by 3D-printing, polymer impregnation and pyrolysis (PIP) and chemical vapor deposition (CVD). <i>Journal of the European Ceramic Society</i> , 2021, 41, 3274-3284.	5.7	28
7	<sup>13</sup> C NMR Parameters of Disordered Carbons: Atomistic Simulations, DFT Calculations, and Experimental Results. <i>Journal of Physical Chemistry C</i> , 2020, 124, 12784-12793.	3.1	6
8	The role of P 3s <sub>2</sub> lone pair (E) in structure, properties and phase transitions of black phosphorus. Stereochemistry and ab initio topology analyses. <i>Solid State Sciences</i> , 2020, 100, 106068.	3.2	6
9	Digitization and image-based structure-properties relationship evaluation of a porous gold micro-electrode. <i>Materials and Design</i> , 2020, 193, 108812.	7.0	10
10	Modeling of the non-linear mechanical and thermomechanical behavior of 3D carbon/carbon composites based on internal interfaces. <i>Carbon</i> , 2019, 154, 178-191.	10.3	16
11	Upscaled model for diffusion and serial reduction pathways in porous electrodes. <i>Journal of Electroanalytical Chemistry</i> , 2019, 855, 113325.	3.8	6
12	Thermal design, optimization and additive manufacturing of ceramic regular structures to maximize the radiative heat transfer. <i>Materials and Design</i> , 2019, 163, 107539.	7.0	70
13	Image-Based Numerical Modeling of Self-Healing in a Ceramic-Matrix Minicomposite. <i>Ceramics</i> , 2019, 2, 308-326.	2.6	10
14	New insight on carbonisation and graphitisation mechanisms as obtained from a bottom-up analytical approach of X-ray diffraction patterns. <i>Carbon</i> , 2019, 147, 602-611.	10.3	39
15	Optimal Thickness of a Porous Micro-Electrode Operating a Single Redox Reaction. <i>ChemElectroChem</i> , 2019, 6, 173-180.	3.4	10
16	Ablative and catalytic behavior of carbon-based porous thermal protection materials in nitrogen plasmas. <i>Carbon</i> , 2018, 134, 376-390.	10.3	23
17	5.4 Chemical Vapor Infiltration Processing of Ceramic Matrix Composites. , 2018, , 86-129.		5
18	A time-dependent atomistic reconstruction of severe irradiation damage and associated property changes in nuclear graphite. <i>Carbon</i> , 2017, 120, 111-120.	10.3	23

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19	Synthesis of carbon coating and carbon matrix for C/C composites based on a hydrocarbon in its supercritical state. <i>Journal of Supercritical Fluids</i> , 2017, 127, 41-47.	3.2	7
20	Microstructure and gas-surface interaction studies of a 3D carbon/carbon composite in atmospheric entry plasma. <i>Carbon</i> , 2017, 114, 84-97.	10.3	27
21	Analytical modeling of the transient ablation of a 3D C/C composite. <i>International Journal of Heat and Mass Transfer</i> , 2017, 115, 1150-1165.	4.8	26
22	Damage investigation and modeling of 3D woven ceramic matrix composites from X-ray tomography in-situ tensile tests. <i>Acta Materialia</i> , 2017, 140, 130-139.	7.9	99
23	Multi-scale modeling of diffusion and electrochemical reactions in porous micro-electrodes. <i>Chemical Engineering Science</i> , 2017, 173, 153-167.	3.8	25
24	Polymer-derived Silicoboron Carbonitride Foams for CO <sub>2</sub> Capture: From Design to Application as Scaffolds for the in Situ Growth of Metal-Organic Frameworks. <i>Chemistry - A European Journal</i> , 2016, 22, 8346-8357.	3.3	16
25	Thermal properties measurements of a silica/pyrocarbon composite at the microscale. <i>Journal of Applied Physics</i> , 2016, 120, 245101.	2.5	0
26	Thermographic and tomographic methods for tridimensional characterization of thermal transfer in silica/phenolic composites. <i>Composites Part B: Engineering</i> , 2016, 104, 71-79.	12.0	8
27	A flash characterisation method for thin cylindrical multilayered composites based on the combined front and rear faces thermograms. <i>Quantitative InfraRed Thermography Journal</i> , 2016, 13, 182-194.	4.2	3
28	Numerical study of effective heat conductivities of foams by coupled conduction and radiation. <i>International Journal of Thermal Sciences</i> , 2016, 109, 270-278.	4.9	26
29	A hybrid random walk method for the simulation of coupled conduction and linearized radiation transfer at local scale in porous media with opaque solid phases. <i>International Journal of Heat and Mass Transfer</i> , 2016, 93, 707-719.	4.8	34
30	Mechanism of strength reduction along the graphenization pathway. <i>Science Advances</i> , 2015, 1, e1501009.	10.3	16
31	Chemical vapor deposition/infiltration processes for ceramic composites. , 2015, , 147-176.		8
32	Modeling of chemical vapor infiltration processes. , 2015, , 415-458.		6
33	Orientation-guided two-scale approach for the segmentation and quantitative description of woven bundles of fibers from three-dimensional tomographic images. <i>Journal of Electronic Imaging</i> , 2015, 24, 061113.	0.9	4
34	A quantitative, space-resolved method for optical anisotropy estimation in bulk carbons. <i>Carbon</i> , 2015, 91, 423-435.	10.3	6
35	Nanoscale elasticity of highly anisotropic pyrocarbons. <i>Carbon</i> , 2015, 94, 285-294.	10.3	24
36	On the prediction of graphene's elastic properties with reactive empirical bond order potentials. <i>Carbon</i> , 2015, 89, 176-187.	10.3	32

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37	Investigating carbon materials nanostructure using image orientation statistics. Carbon, 2015, 84, 160-173.	10.3	23
38	Integrative Chemistry toward Biosourced SiC Macrocellular Foams Bearing Unprecedented Heat Transport Properties. Materials Research Society Symposia Proceedings, 2014, 1621, 209-214.	0.1	0
39	Behavior of Raman D band for pyrocarbons with crystallite size in the 2-5 nm range. Applied Physics A: Materials Science and Processing, 2014, 114, 759-763.	2.3	38
40	A Large-Scale Molecular Dynamics Study of the Divacancy Defect in Graphene. Journal of Physical Chemistry C, 2014, 118, 8200-8216.	3.1	40
41	A Raman study to obtain crystallite size of carbon materials: A better alternative to the Tuinstra-Koenig law. Carbon, 2014, 80, 629-639.	10.3	186
42	Nanoscale structure and texture of highly anisotropic pyrocarbons revisited with transmission electron microscopy, image processing, neutron diffraction and atomistic modeling. Carbon, 2014, 80, 472-489.	10.3	53
43	Application of X-ray computed micro-tomography to the study of damage and oxidation kinetics of thermostructural composites. Nuclear Instruments & Methods in Physics Research B, 2014, 324, 113-117.	1.4	9
44	First Biosourced Monolithic Macroporous SiC Composite Foams (B-SiC-HIPE) Bearing Unprecedented Heat Transport Properties. Advanced Engineering Materials, 2013, 15, 893-902.	3.5	3
45	Reactive Chemical Vapour Deposition of Titanium Carbide from H <sub>2</sub> -TiCl <sub>4</sub> Gas Mixture on Pyrocarbon: A Comprehensive Study. Physics Procedia, 2013, 46, 79-87.	1.2	8
46	A New Approach To Light-Weight Ablators Analysis: From Micro-Tomography Measurements to Statistical Analysis and Modeling. , 2013, , .		22
47	Rippled nanocarbons from periodic arrangements of reordered bivacancies in graphene or nanotubes. Journal of Chemical Physics, 2012, 136, 124705.	3.0	7
48	Measurement of the thermal diffusivity of a silica fiber bundle using a laser and an IR camera. Journal of Physics: Conference Series, 2012, 395, 012079.	0.4	2
49	An Efficient and Accurate Formalism for the Treatment of Large Amplitude Intramolecular Motion. Journal of Chemical Theory and Computation, 2012, 8, 2713-2724.	5.3	12
50	Microstructure of pyrocarbons from pair distribution function analysis using neutron diffraction. Carbon, 2012, 50, 1563-1573.	10.3	30
51	Structural features of pyrocarbon atomistic models constructed from transmission electron microscopy images. Carbon, 2012, 50, 4388-4400.	10.3	67
52	Non-parametric synthesis of laminar volumetric textures from a 2D sample. , 2012, , .		5
53	Theoretical Study of the Decomposition of BCl <sub>3</sub> Induced by a H Radical. Journal of Physical Chemistry A, 2011, 115, 4786-4797.	2.5	8
54	Reaction Mechanism for the Thermal Decomposition of BCl <sub>3</sub> /CH <sub>4</sub> /H <sub>2</sub> Gas Mixtures. Journal of Physical Chemistry A, 2011, 115, 11579-11588.	2.5	9

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55	Simplified marching cubes: An efficient discretization scheme for simulations of deposition/ablation in complex media. Computational Materials Science, 2011, 50, 893-902.	3.0	32
56	Pearson random walk algorithms for fiber-scale modeling of Chemical Vapor Infiltration. Computational Materials Science, 2011, 50, 1157-1168.	3.0	13
57	A Brownian motion algorithm for tow scale modeling of chemical vapor infiltration. Computational Materials Science, 2011, 50, 1871-1878.	3.0	18
58	Co <sub>1-x</sub> Mg <sub>x</sub> MoO <sub>4</sub> Compounds for Pressure Indicators. ACS Applied Materials & Interfaces, 2011, 3, 1319-1324.	8.0	15
59	Tough silicon carbide macro/mesocellular crack-free monolithic foams. Journal of Materials Chemistry, 2011, 21, 14732.	6.7	15
60	Methyldichloroborane Evidenced as an Intermediate in the Chemical Vapour Deposition Synthesis of Boron Carbide. Journal of Nanoscience and Nanotechnology, 2011, 11, 8323-8327.	0.9	5
61	Benefits of X-Ray CMT for the Modeling of C/C Composites. Advanced Engineering Materials, 2011, 13, 178-185.	3.5	26
62	Simulation of Chemical Vapor Infiltration and Deposition Based on 3D Images: A Local Scale Approach. Chemical Vapor Deposition, 2011, 17, 312-320.	1.3	2
63	Temperature induced transition from hexagonal to circular pits in graphite oxidation by O <sub>2</sub> . Applied Physics Letters, 2011, 99, .	3.3	15
64	An X-Ray Tomography Based Modeling Solution For Chemical Vapor Infiltration Of Ceramic Matrix Composites. , 2010, , .		1
65	Modelling of carbon-carbon composite ablation in rocket nozzles. Composites Science and Technology, 2010, 70, 1303-1311.	7.8	107
66	The rate-limiting step in the thermal oxidation of silicon carbide. Scripta Materialia, 2010, 62, 654-657.	5.2	12
67	Surface relaxation and oxygen adsorption behavior of different SiC polytypes: a first-principles study. Journal of Physics Condensed Matter, 2010, 22, 265003.	1.8	22
68	Modelling Infiltration of Fibre Preforms From X-Ray Tomography Data. Advances in Science and Technology, 2010, 71, 108-117.	0.2	4
69	Hindered rotor models with variable kinetic functions for accurate thermodynamic and kinetic predictions. Journal of Chemical Physics, 2010, 133, 154112.	3.0	13
70	Giant titanium electron wave function in gallium oxide: A potential electron-nuclear spin system for quantum information processing. Physical Review B, 2010, 82, . Adsorption of atomic and molecular oxygen on SiC c(111) and xsi:ml="http://www.w3.org/1998/ivmath/ivmathML	3.2	9
71			

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73	Fibre-scale Modeling of C/C Processing by Chemical Vapour Infiltration using Xray CMT Images and Random Walkers. ECS Transactions, 2009, 25, 1275-1284.	0.5	8
74	Ablation of carbon-based materials: Multiscale roughness modelling. Composites Science and Technology, 2009, 69, 1470-1477.	7.8	73
75	Global and local characterization of the thermal diffusivities of SiCf/SiC composites with infrared thermography and flash method. Composites Science and Technology, 2009, 69, 1131-1141.	7.8	21
76	A Brownian motion technique to simulate gasification and its application to C/C composite ablation. Computational Materials Science, 2009, 44, 1034-1041.	3.0	52
77	Formation of multiwall fullerenes from nanodiamonds studied by atomistic simulations. Physical Review B, 2009, 80, .	3.2	45
78	Analytical modeling of the steady state ablation of a 3D C/C composite. International Journal of Heat and Mass Transfer, 2008, 51, 2614-2627.	4.8	99
79	Rarefied Pure Gas Transport in Non-isothermal Porous Media: Effective Transport Properties from Homogenization of the Kinetic Equation. Transport in Porous Media, 2008, 73, 211-232.	2.6	7
80	Rarefied Pure Gas Transport in Non-isothermal Porous Media: Validation and Tests of the Model. Transport in Porous Media, 2008, 75, 295-317.	2.6	4
81	Optimal orientation estimators for detection of cylindrical objects. Signal, Image and Video Processing, 2008, 2, 51-58.	2.7	15
82	Molecular dynamics evidences of the full graphitization of a nanodiamond annealed at 1500K. Chemical Physics Letters, 2008, 454, 299-304.	2.6	34
83	Reinforced carbon foams prepared by chemical vapor infiltration: A process modeling approach. Surface and Coatings Technology, 2008, 203, 510-515.	4.8	20
84	Experimental and theoretical investigation of BCl <sub>3</sub> decomposition in H <sub>2</sub> . Surface and Coatings Technology, 2008, 203, 643-647.	4.8	10
85	Theoretical Investigation for the Active to Passive Transition in the Oxidation of Silicon Carbide. Journal of the American Ceramic Society, 2008, 91, 1665-1673.	3.8	35
86	Axis detection of cylindrical objects in three-dimensional images. Journal of Electronic Imaging, 2008, 17, 031108.	0.9	8
87	Assessment of geometrical and transport properties of a fibrous C/C composite preform as digitized by x-ray computerized microtomography: Part II. Heat and gas transport properties. Journal of Materials Research, 2007, 22, 1537-1550.	2.6	27
88	Axis detection method for cylindrical objects. , 2007, , .		0
89	A theoretical/experimental approach to the intrinsic oxidation reactivities of C/C composites and of their components. Carbon, 2007, 45, 2768-2776.	10.3	58
90	Analytical stability study of the densification front in carbon- or ceramic-matrix composites processing by TG-CVI. Chemical Engineering Science, 2007, 62, 6081-6089.	3.8	8

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91	Identification of Microscale Ablative Properties of C/C Composites Using Inverse Simulation. , 2006, , .		5
92	Modelling of the CVI Processes. Advances in Science and Technology, 2006, 50, 97-106.	0.2	19
93	Low temperature pyrocarbons: a review. Journal of the Brazilian Chemical Society, 2006, 17, 1090-1095.	0.6	46
94	The film-boiling densification process for C/C composite fabrication: From local scale to overall optimization. Chemical Engineering Science, 2006, 61, 5636-5653.	3.8	35
95	Analytical and numerical study of the densification of carbon/carbon composites by a film-boiling chemical vapor infiltration process. Chemical Engineering Science, 2006, 61, 7509-7527.	3.8	14
96	Application of X-Ray Microtomography to the Microstructural Characterization of Al-Based Functionally Graded Materials. Advances in Science and Technology, 2006, 45, 1109.	0.2	2
97	Modeling of isobaric isothermal chemical vapor infiltration: effects of reactor control parameters on a densification. Journal of Materials Processing Technology, 2005, 166, 15-29.	6.3	29
98	Ablation of carbon-based materials: Investigation of roughness set-up from heterogeneous reactions. International Journal of Heat and Mass Transfer, 2005, 48, 3387-3401.	4.8	45
99	Evaluation of SiC-Particle Connectivity in Functionally Graded Al/SiC Composites by Synchrotron Radiation Holographic Microtomography. Materials Science Forum, 2005, 492-493, 621-626.	0.3	3
100	Adaptive estimation of normals and surface area for discrete 3-D objects: application to snow binary data from X-ray tomography. IEEE Transactions on Image Processing, 2005, 14, 585-596.	9.8	47
101	Assessment of Geometrical and Transport Properties of a Fibrous C/C Composite Preform Using x-ray Computerized Micro-tomography: Part I. Image Acquisition and Geometrical Properties. Journal of Materials Research, 2005, 20, 2328-2339.	2.6	38
102	Computing Structural and Transport Properties of C/C Composites from 3D Tomographic Images.. Materials Science Forum, 2004, 455-456, 751-754.	0.3	8
103	CVD and CVI of pyrocarbon from various precursors. Surface and Coatings Technology, 2004, 188-189, 241-249.	4.8	81
104	Thermal modelling of a carbon/carbon composite material fabrication process. European Physical Journal Special Topics, 2004, 120, 291-297.	0.2	6
105	X-ray tomographic imaging of Al/SiCp functionally graded composites fabricated by centrifugal casting. Nuclear Instruments & Methods in Physics Research B, 2003, 200, 295-302.	1.4	27
106	Direct 3D microscale imaging of carbon-carbon composites with computed holotomography. Nuclear Instruments & Methods in Physics Research B, 2003, 200, 308-314.	1.4	37
107	Evaluation of Al/SiC Wetting Characteristics in Functionally Graded Metal-Matrix Composites by Synchrotron Radiation Microtomography. Materials Science Forum, 2003, 423-425, 263-268.	0.3	8
108	Image segmentation for phase-contrast hard X-ray CMT of C/C composites. Carbon, 2001, 39, 167-173.	10.3	37

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109	Monitoring Density and Temperature in C/C Composites Processing by CVI with Induction Heating. Journal of Materials Synthesis and Processing, 2001, 9, 259-273.	0.3	23
110	STIM tomography: A potential tool for the non-destructive characterisation of SiC microcomposite materials. Nuclear Instruments & Methods in Physics Research B, 2001, 181, 238-243.	1.4	8
111	Correlation Between Homogeneous Propane Pyrolysis and Pyrocarbon Deposition. Journal of the Electrochemical Society, 2001, 148, C695.	2.9	45
112	An efficient data structure for random walk algorithms in faceted porous media. , 2001, , .		1
113	Extension of the bifurcation method for diffusion coefficients to porous medium transport. Comptes Rendus Mecanique, 2000, 328, 465-470.	0.2	1
114	Pyrocarbon anisotropy as measured by electron diffraction and polarized light. Journal of Materials Research, 2000, 15, 92-101.	2.6	122
115	Interaction between a reactive preform and the surrounding gas-phase during CVI. European Physical Journal Special Topics, 2000, 10, Pr2-9-Pr2-17.	0.2	12
116	On the CVD of MoSi <sub>2</sub> : an experimental study from the MoCl <sub>4</sub> -SiCl <sub>4</sub> -H <sub>2</sub> -Ar precursor with a view to the preparation of C/MoSi <sub>2</sub> /SiC and SiC/MoSi <sub>2</sub> /SiC microcomposites. Journal of Materials Science, 1998, 33, 4461-4473.	3.7	2
117	The thermal gradient-pulse flow CVI process: A new chemical vapor infiltration technique for the densification of fibre preforms. Journal of the European Ceramic Society, 1998, 18, 857-870.	5.7	29
118	Processing of Ceramic Matrix Composites by Pulsed-CVI and Related Techniques. Key Engineering Materials, 1998, 159-160, 359-366.	0.4	13
119	Application of Rendering Techniques to Monte-Carlo Physical Simulation of Gas Diffusion. Eurographics, 1997, , 297-308.	0.4	2
120	A Cluster Approach for the Modeling of the Layer-by-Layer Growth of Silicon Carbide Polytypes. The Journal of Physical Chemistry, 1995, 99, 5402-5412.	2.9	1
121	Modelling Binary, Knudsen and Transition Regime Diffusion Inside Complex Porous Media. European Physical Journal Special Topics, 1995, 05, C5-159-C5-166.	0.2	20
122	ITERATIONS OF THE SAWTOOTH MAP AS A DYNAMICAL MODEL FOR CVD/CVI SiC POLYTYPE GROWTH. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 1993, 03, 1177-1194.	1.7	5
123	Atomic relaxation and dynamical generation of ordered and disordered chemical vapour infiltration (CVI) SiC polytypes. Journal of Crystal Growth, 1992, 118, 430-438.	1.5	14
124	Ablation of Carbon/Carbon Composites: Direct Numerical Simulation and Effective Behavior. , 0, , 99-106.		8
125	The Notion of Densification Front in CVI Processing with Temperature Gradients. , 0, , 187-195.		9
126	The CVI-Process : State of the Art and Perspective. Ceramic Engineering and Science Proceedings, 0, , 373-386.	0.1	20



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127	Modelling of the CVI Processes. Advances in Science and Technology, 0, , 97-106.	0.2	3
128	Scalloped Morphologies of Ablated Materials. , 0, , 245-252.		1