

# David Bercovici

## List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

107 papers	5,254 citations	42 h-index	70 g-index
112 ext. papers	5,759 ext. citations	7.5 avg, IF	6.11 L-index

#	Paper	IF	Citations
107	On the co-evolution of dislocations and grains in deforming rocks. <i>Physics of the Earth and Planetary Interiors</i> , <b>2022</b> , 106874	2.3	1
106	A Two-Phase Model for the Evolution of Planetary Embryos With Implications for the Formation of Mars. <i>Journal of Geophysical Research E: Planets</i> , <b>2021</b> , 126, e2020JE006754	4.1	2
105	Evolution and demise of passive margins through grain mixing and damage. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2021</b> , 118,	11.5	6
104	Thermocapillary effects in two-phase medium and applications to metal-silicate separation. <i>Physics of the Earth and Planetary Interiors</i> , <b>2021</b> , 311, 106640	2.3	0
103	Two-phase magnetohydrodynamics: Theory and applications to planetesimal cores. <i>Physics of the Earth and Planetary Interiors</i> , <b>2020</b> , 300, 106432	2.3	1
102	The Effects of Degassing on Magmatic Gas Waves and Long Period Eruptive Precursors at Silicic Volcanoes. <i>Journal of Geophysical Research: Solid Earth</i> , <b>2020</b> , 125, e2020JB019755	3.6	0
101	The Generation of Plate Tectonics From Grains to Global Scales: A Brief Review. <i>Tectonics</i> , <b>2019</b> , 38, 4058-4076	4.3	12
100	A theoretical model for the evolution of microstructure in lithospheric shear zones. <i>Geophysical Journal International</i> , <b>2019</b> , 216, 803-819	2.6	7
99	A simple toy model for coupled retreat and detachment of subducting slabs. <i>Journal of Geodynamics</i> , <b>2019</b> , 129, 275-289	2.2	6
98	Magma wagging and whirling in volcanic conduits. <i>Journal of Volcanology and Geothermal Research</i> , <b>2018</b> , 351, 57-74	2.8	1
97	Collapse of passive margins by lithospheric damage and plunging grain size. <i>Earth and Planetary Science Letters</i> , <b>2018</b> , 484, 341-352	5.3	22
96	Magma wagging and whirling: excitation by gas flux. <i>Geophysical Journal International</i> , <b>2018</b> , 215, 713-735	3.6	0
95	A continuum theory for phase mixing and grain-damage relevant to tectonic plate boundary evolution. <i>Physics of the Earth and Planetary Interiors</i> , <b>2018</b> , 285, 23-44	2.3	6
94	Dynamic weakening with grain-damage and implications for slab detachment. <i>Physics of the Earth and Planetary Interiors</i> , <b>2018</b> , 285, 76-90	2.3	6
93	Grain damage, phase mixing and plate-boundary formation. <i>Journal of Geodynamics</i> , <b>2017</b> , 108, 40-55	2.2	24
92	Thermal evolution of planetesimals during accretion. <i>Icarus</i> , <b>2017</b> , 285, 103-117	3.8	6
91	Formation of lithospheric shear zones: Effect of temperature on two-phase grain damage. <i>Physics of the Earth and Planetary Interiors</i> , <b>2017</b> , 270, 195-212	2.3	25

90	Two-dimensional magmons with damage and the transition to magma-fracturing. <i>Physics of the Earth and Planetary Interiors</i> , <b>2016</b> , 256, 13-25	2.3	5
89	A mechanism for mode selection in melt band instabilities. <i>Earth and Planetary Science Letters</i> , <b>2016</b> , 433, 139-145	5.3	3
88	Grain-damage hysteresis and plate tectonic states. <i>Physics of the Earth and Planetary Interiors</i> , <b>2016</b> , 253, 31-47	2.3	37
87	Abrupt tectonics and rapid slab detachment with grain damage. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2015</b> , 112, 1287-91	11.5	39
86	Melt-band instabilities with two-phase damage. <i>Geophysical Journal International</i> , <b>2015</b> , 201, 640-651	2.6	11
85	Two-phase dynamics of volcanic eruptions: Particle size distribution and the conditions for choking. <i>Journal of Geophysical Research: Solid Earth</i> , <b>2015</b> , 120, 1503-1522	3.6	28
84	On the thermal and magnetic histories of Earth and Venus: Influences of melting, radioactivity, and conductivity. <i>Physics of the Earth and Planetary Interiors</i> , <b>2014</b> , 236, 36-51	2.3	72
83	Slab rollback instability and supercontinent dispersal. <i>Geophysical Research Letters</i> , <b>2014</b> , 41, 6659-6666	4.9	22
82	Initiation of plate tectonics from post-magma ocean thermochemical convection. <i>Journal of Geophysical Research: Solid Earth</i> , <b>2014</b> , 119, 8538-8561	3.6	48
81	Contraction or expansion of the Moon's crust during magma ocean freezing?. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , <b>2014</b> , 372, 20130240	3	9
80	Two-phase viscoelastic damage theory, with applications to subsurface fluid injection. <i>Geophysical Journal International</i> , <b>2014</b> , 199, 1481-1496	2.6	3
79	Scaling laws for convection with temperature-dependent viscosity and grain-damage. <i>Geophysical Journal International</i> , <b>2014</b> , 199, 580-603	2.6	30
78	Plate tectonics, damage and inheritance. <i>Nature</i> , <b>2014</b> , 508, 513-6	50.4	192
77	The Transition-Zone Water Filter Model for Global Material Circulation: Where Do We Stand?. <i>Geophysical Monograph Series</i> , <b>2013</b> , 289-313	1.1	10
76	Two-phase damage models of magma-fracturing. <i>Earth and Planetary Science Letters</i> , <b>2013</b> , 368, 1-8	5.3	11
75	Divergent evolution of Earth and Venus: Influence of degassing, tectonics, and magnetic fields. <i>Icarus</i> , <b>2013</b> , 226, 1447-1464	3.8	52
74	Generation of plate tectonics with two-phase grain-damage and pinning: Source-sink model and toroidal flow. <i>Earth and Planetary Science Letters</i> , <b>2013</b> , 365, 275-288	5.3	67
73	Mineral carbon sequestration and induced seismicity. <i>Geophysical Research Letters</i> , <b>2013</b> , 40, 814-818	4.9	8

72	Rock deformation models and fluid leak-off in hydraulic fracturing. <i>Geophysical Journal International</i> , <b>2013</b> , 194, 1514-1526	2.6	73
71	Volcanic tremors and magma wagging: gas flux interactions and forcing mechanism. <i>Geophysical Journal International</i> , <b>2013</b> , 195, 1001-1022	2.6	10
70	Eruption cyclicity at silicic volcanoes potentially caused by magmatic gas waves. <i>Nature Geoscience</i> , <b>2013</b> , 6, 856-860	18.3	42
69	Mechanisms for the generation of plate tectonics by two-phase grain-damage and pinning. <i>Physics of the Earth and Planetary Interiors</i> , <b>2012</b> , 202-203, 27-55	2.3	152
68	The conditions for plate tectonics on super-Earths: Inferences from convection models with damage. <i>Earth and Planetary Science Letters</i> , <b>2012</b> , 331-332, 281-290	5.3	99
67	Drip instabilities of continental lithosphere: acceleration and entrainment by damage. <i>Geophysical Journal International</i> , <b>2012</b> , 189, 717-729	2.6	4
66	Mantle P-wave velocity structure beneath the Hawaiian hotspot. <i>Earth and Planetary Science Letters</i> , <b>2011</b> , 303, 267-280	5.3	58
65	Disequilibrium melting of a two phase multicomponent mantle. <i>Geophysical Journal International</i> , <b>2011</b> , 184, 699-718	2.6	63
64	A thermodynamically self-consistent damage equation for grain size evolution during dynamic recrystallization. <i>Geophysical Journal International</i> , <b>2011</b> , 184, 719-728	2.6	112
63	Asymmetric shallow mantle structure beneath the Hawaiian Swell-evidence from Rayleigh waves recorded by the PLUME network. <i>Geophysical Journal International</i> , <b>2011</b> , 187, 1725-1742	2.6	38
62	Seismic tremors and magma wagging during explosive volcanism. <i>Nature</i> , <b>2011</b> , 470, 522-5	50.4	67
61	Two-phase dynamics of volcanic eruptions: compaction, compression and the conditions for choking. <i>Geophysical Journal International</i> , <b>2010</b> , 182, 843-864	2.6	45
60	Reactive infiltration of hydrous melt above the mantle transition zone. <i>Journal of Geophysical Research</i> , <b>2010</b> , 115,		8
59	Mantle shear-wave velocity structure beneath the Hawaiian hot spot. <i>Science</i> , <b>2009</b> , 326, 1388-90	33.3	153
58	Variations in planetary convection via the effect of climate on damage. <i>Earth and Planetary Science Letters</i> , <b>2009</b> , 277, 29-37	5.3	53
57	Stability of a compressible hydrous melt layer above the transition zone. <i>Earth and Planetary Science Letters</i> , <b>2009</b> , 278, 78-86	5.3	10
56	Ascent and compaction of gas rich magma and the effects of hysteretic permeability. <i>Earth and Planetary Science Letters</i> , <b>2009</b> , 282, 258-267	5.3	36
55	Formation and structure of lithospheric shear zones with damage. <i>Physics of the Earth and Planetary Interiors</i> , <b>2009</b> , 175, 115-126	2.3	25

54	Probing the Hawaiian Hot Spot With New Broadband Ocean Bottom Instruments. <i>Eos</i> , <b>2009</b> , 90, 362-363	1.5	30
53	Water-induced convection in the Earth's mantle transition zone. <i>Journal of Geophysical Research</i> , <b>2009</b> , 114,		51
52	A model for the spreading and compaction of two-phase viscous gravity currents. <i>Journal of Fluid Mechanics</i> , <b>2009</b> , 630, 299-329	3.7	6
51	Plate generation and two-phase damage theory in a model of mantle convection. <i>Geophysical Journal International</i> , <b>2008</b> , 174, 1065-1080	2.6	36
50	On the dynamics of a hydrous melt layer above the transition zone. <i>Journal of Geophysical Research</i> , <b>2007</b> , 112,		43
49	Simultaneous melting and compaction in deformable two-phase media. <i>Geophysical Journal International</i> , <b>2007</b> , 168, 964-982	2.6	58
48	Oscillating and stagnating plumes in the Earth's lower mantle. <i>Earth and Planetary Science Letters</i> , <b>2006</b> , 248, 90-105	5.3	37
47	Role of grain boundaries in magma migration and storage. <i>Earth and Planetary Science Letters</i> , <b>2006</b> , 248, 735-749	5.3	62
46	Slab dehydration in the Earth's mantle transition zone. <i>Earth and Planetary Science Letters</i> , <b>2006</b> , 251, 156-167	5.3	53
45	Tectonic plate generation and two-phase damage: Void growth versus grain size reduction. <i>Journal of Geophysical Research</i> , <b>2005</b> , 110,		68
44	The influence of the transition zone water filter on convective circulation in the mantle. <i>Geophysical Research Letters</i> , <b>2004</b> , 31,	4.9	9
43	A Theoretical Model of Pattern Formation in Coral Reefs. <i>Ecosystems</i> , <b>2003</b> , 6, 0061-0074	3.9	16
42	Energetics of a two-phase model of lithospheric damage, shear localization and plate-boundary formation. <i>Geophysical Journal International</i> , <b>2003</b> , 152, 581-596	2.6	116
41	Two-dimensional convection with a self-lubricating, simple-damage rheology. <i>Geophysical Journal International</i> , <b>2003</b> , 154, 783-800	2.6	26
40	Two-phase damage theory and crustal rock failure: the theoretical void limit, and the prediction of experimental data. <i>Geophysical Journal International</i> , <b>2003</b> , 155, 1057-1064	2.6	40
39	Whole-mantle convection and the transition-zone water filter. <i>Nature</i> , <b>2003</b> , 425, 39-44	50.4	549
38	The generation of plate tectonics from mantle convection. <i>Earth and Planetary Science Letters</i> , <b>2003</b> , 205, 107-121	5.3	279
37	13. Theoretical Analysis of Shear Localization in the Lithosphere <b>2002</b> , 387-420		5

36	Pattern formation on the interface of a two-layer fluid: bi-viscous lower layer. <i>Wave Motion</i> , <b>2001</b> , 34, 431-452	1.8	9
35	Focusing of eruptions by fracture wall erosion. <i>Geophysical Research Letters</i> , <b>2001</b> , 28, 1823-1826	4.9	7
34	A theoretical model of hotspot volcanism: Control on volcanic spacing and patterns via magma dynamics and lithospheric stresses. <i>Journal of Geophysical Research</i> , <b>2001</b> , 106, 683-702		27
33	A two-phase model for compaction and damage: 2. Applications to compaction, deformation, and the role of interfacial surface tension. <i>Journal of Geophysical Research</i> , <b>2001</b> , 106, 8907-8924		103
32	A two-phase model for compaction and damage: 3. Applications to shear localization and plate boundary formation. <i>Journal of Geophysical Research</i> , <b>2001</b> , 106, 8925-8939		70
31	A two-phase model for compaction and damage: 1. General Theory. <i>Journal of Geophysical Research</i> , <b>2001</b> , 106, 8887-8906		221
30	The Relation Between Mantle Dynamics and Plate Tectonics: A Primer. <i>Geophysical Monograph Series</i> , <b>2000</b> , 5-46	1.1	72
29	Non-hotspot formation of volcanic chains: control of tectonic and flexural stresses on magma transport. <i>Earth and Planetary Science Letters</i> , <b>2000</b> , 181, 539-554	5.3	60
28	Discrete alternating hotspot islands formed by interaction of magma transport and lithospheric flexure. <i>Nature</i> , <b>1999</b> , 397, 604-607	50.4	61
27	Interpolation with Splines in Tension: A Green's Function Approach. <i>Mathematical Geosciences</i> , <b>1998</b> , 30, 77-93		93
26	A continuous plate-tectonic model using geophysical data to estimate plate-margin widths, with a seismicity-based example. <i>Geophysical Journal International</i> , <b>1998</b> , 133, 379-389	2.6	17
25	Generation of plate tectonics from lithosphere-mantle flow and void-volatile self-lubrication. <i>Earth and Planetary Science Letters</i> , <b>1998</b> , 154, 139-151	5.3	111
24	Mantle plume heads and the initiation of plate tectonic reorganizations. <i>Earth and Planetary Science Letters</i> , <b>1998</b> , 156, 195-207	5.3	20
23	The non-linear initiation of diapirs and plume heads. <i>Physics of the Earth and Planetary Interiors</i> , <b>1997</b> , 101, 119-130	2.3	34
22	The clustering of rising diapirs and plume heads. <i>Geophysical Research Letters</i> , <b>1997</b> , 24, 201-204	4.9	16
21	Pacific Plate motion and undulations in geoid and bathymetry. <i>Earth and Planetary Science Letters</i> , <b>1996</b> , 140, 53-66	5.3	27
20	Plate generation in a simple model of lithosphere-mantle flow with dynamic self-lubrication. <i>Earth and Planetary Science Letters</i> , <b>1996</b> , 144, 41-51	5.3	64
19	A gravity current model of cooling mantle plume heads with temperature-dependent buoyancy and viscosity. <i>Journal of Geophysical Research</i> , <b>1996</b> , 101, 3291-3309		32

18	A source-sink model of the generation of plate tectonics from non-Newtonian mantle flow. <i>Journal of Geophysical Research</i> , <b>1995</b> , 100, 2013-2030		67
17	On the purpose of toroidal motion in a convecting mantle. <i>Geophysical Research Letters</i> , <b>1995</b> , 22, 3107-3110	4.9	25
16	A continuous kinematic model of plate-tectonic motions. <i>Geophysical Journal International</i> , <b>1994</b> , 119, 595-610	2.6	17
15	A theoretical model of cooling viscous gravity currents with temperature-dependent viscosity. <i>Geophysical Research Letters</i> , <b>1994</b> , 21, 1177-1180	4.9	22
14	The possible reflection of mantle discontinuities in Pacific geoid and bathymetry. <i>Geophysical Research Letters</i> , <b>1994</b> , 21, 1943-1946	4.9	18
13	Double flood basalts and plume head separation at the 660-kilometer discontinuity. <i>Science</i> , <b>1994</b> , 266, 1367-9	33.3	100
12	On the penetration of the 660 km phase change by mantle downflows. <i>Geophysical Research Letters</i> , <b>1993</b> , 20, 2599-2602	4.9	21
11	A simple model of plate generation from mantle flow. <i>Geophysical Journal International</i> , <b>1993</b> , 114, 635-650	10.5	105
10	Three-dimensional convection of an infinite-Prandtl-number compressible fluid in a basally heated spherical shell. <i>Journal of Fluid Mechanics</i> , <b>1992</b> , 239, 683	3.7	68
9	Wave dynamics in mantle plume heads and hotspot swells. <i>Geophysical Research Letters</i> , <b>1992</b> , 19, 1791-1794	1.9	3
8	Modal growth and coupling in three-dimensional spherical convection. <i>Geophysical and Astrophysical Fluid Dynamics</i> , <b>1991</b> , 61, 149-159	1.4	7
7	On the equipartition of kinetic energy in plate tectonics. <i>Geophysical Research Letters</i> , <b>1991</b> , 18, 1751-1754	4.9	41
6	Chaotic, subduction-like downflows in a spherical model of convection in the Earth's mantle. <i>Nature</i> , <b>1990</b> , 347, 274-277	50.4	53
5	Three-Dimensional Spherical Models of Convection in the Earth's Mantle. <i>Science</i> , <b>1989</b> , 244, 950-5	33.3	154
4	Three-dimensional thermal convection in a spherical shell. <i>Journal of Fluid Mechanics</i> , <b>1989</b> , 206, 75-104	3.7	85
3	Influence of heating mode on three-dimensional mantle convection. <i>Geophysical Research Letters</i> , <b>1989</b> , 16, 617-620	4.9	62
2	Jovian seismology. <i>Icarus</i> , <b>1987</b> , 69, 557-565	3.8	30
1	Phase transitions and convection in icy satellites. <i>Geophysical Research Letters</i> , <b>1986</b> , 13, 448-451	4.9	23

