

Andrea Tommasi

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121 papers	5,372 citations	43 h-index	70 g-index
131 ext. papers	5,735 ext. citations	4.4 avg, IF	5.76 L-index

#	Paper	IF	Citations
121	Viscoplastic self-consistent and equilibrium-based modeling of olivine lattice preferred orientations: Implications for the upper mantle seismic anisotropy. <i>Journal of Geophysical Research</i> , 2000 , 105, 7893-7908		278
120	The Lherz spinel lherzolite: Refertilized rather than pristine mantle. <i>Earth and Planetary Science Letters</i> , 2007 , 259, 599-612	5.3	276
119	Pressure sensitivity of olivine slip systems and seismic anisotropy of Earth's upper mantle. <i>Nature</i> , 2005 , 433, 731-3	50.4	218
118	Upper mantle tectonics: three-dimensional deformation, olivine crystallographic fabrics and seismic properties. <i>Earth and Planetary Science Letters</i> , 1999 , 168, 173-186	5.3	194
117	Continental rifting parallel to ancient collisional belts: an effect of the mechanical anisotropy of the lithospheric mantle. <i>Earth and Planetary Science Letters</i> , 2001 , 185, 199-210	5.3	184
116	Why do continents break-up parallel to ancient orogenic belts?. <i>Terra Nova</i> , 1997 , 9, 62-66	3	130
115	Deformation and Fluid-Rock Interaction in the Supra-subduction Mantle: Microstructures and Water Contents in Peridotite Xenoliths from the Avacha Volcano, Kamchatka. <i>Journal of Petrology</i> , 2010 , 51, 363-394	3.9	129
114	Deformation patterns in the southern Brazilian branch of the Dom Feliciano Belt: A reappraisal. <i>Journal of South American Earth Sciences</i> , 1992 , 5, 77-96	2	128
113	Olivine, and the Origin of Kimberlite. <i>Journal of Petrology</i> , 2010 , 51, 573-602	3.9	126
112	Rheological heterogeneity, mechanical anisotropy and deformation of the continental lithosphere. <i>Tectonophysics</i> , 1998 , 296, 61-86	3.1	126
111	Forward modeling of the development of seismic anisotropy in the upper mantle. <i>Earth and Planetary Science Letters</i> , 1998 , 160, 1-13	5.3	126
110	Magma-assisted strain localization in an orogen-parallel transcurrent shear zone of southern Brazil. <i>Tectonics</i> , 1994 , 13, 421-437	4.3	113
109	Faults (shear zones) in the Earth's mantle. <i>Tectonophysics</i> , 2012 , 558-559, 1-27	3.1	111
108	Plastic deformation and development of clinopyroxene lattice preferred orientations in eclogites. <i>Journal of Structural Geology</i> , 2002 , 24, 1357-1368	3	106
107	Structural reactivation in plate tectonics controlled by olivine crystal anisotropy. <i>Nature Geoscience</i> , 2009 , 2, 423-427	18.3	100
106	Deformation and Reactive Melt Transport in the Mantle Lithosphere above a Large-scale Partial Melting Domain: the Ronda Peridotite Massif, Southern Spain. <i>Journal of Petrology</i> , 2009 , 50, 1235-1266	3.9	92
105	Deformation, static recrystallization, and reactive melt transport in shallow subcontinental mantle xenoliths (Tok Cenozoic volcanic field, SE Siberia). <i>Earth and Planetary Science Letters</i> , 2008 , 272, 65-77	5.3	92

104	Seismic anisotropy and compositionally induced velocity anomalies in the lithosphere above mantle plumes: a petrological and microstructural study of mantle xenoliths from French Polynesia. <i>Earth and Planetary Science Letters</i> , 2004 , 227, 539-556	5.3	84
103	Feedback between melt percolation and deformation in an exhumed lithosphere–asthenosphere boundary. <i>Earth and Planetary Science Letters</i> , 2008 , 274, 401-413	5.3	83
102	Low strength of Earth's uppermost mantle inferred from tri-axial deformation experiments on dry olivine crystals. <i>Physics of the Earth and Planetary Interiors</i> , 2013 , 220, 37-49	2.3	80
101	Deformation and hydration of the lithospheric mantle beneath the Kaapvaal craton, South Africa. <i>Lithos</i> , 2012 , 149, 31-50	2.9	77
100	Crystal preferred orientations of garnet: comparison between numerical simulations and electron back-scattered diffraction (EBSD) measurements in naturally deformed eclogites. <i>Journal of Structural Geology</i> , 2004 , 26, 2089-2102	3	71
99	Self-indentation of a heterogeneous continental lithosphere. <i>Geology</i> , 1994 , 22, 967	5	66
98	Heterogeneity and anisotropy in the lithospheric mantle. <i>Tectonophysics</i> , 2015 , 661, 11-37	3.1	65
97	Upper mantle deformation and seismic anisotropy in continental rifts. <i>Physics and Chemistry of the Earth</i> , 2000 , 25, 111-117		64
96	Predicted glide systems and crystal preferred orientations of polycrystalline silicate Mg-Perovskite at high pressure: Implications for the seismic anisotropy in the lower mantle. <i>Earth and Planetary Science Letters</i> , 2008 , 271, 135-144	5.3	61
95	Deformation and seismic anisotropy of the lithospheric mantle in the southeastern Carpathians inferred from the study of mantle xenoliths. <i>Earth and Planetary Science Letters</i> , 2008 , 272, 50-64	5.3	61
94	Deformation of olivine in torsion under hydrous conditions. <i>Physics of the Earth and Planetary Interiors</i> , 2012 , 202-203, 56-70	2.3	60
93	Anisotropy of thermal diffusivity in the upper mantle. <i>Nature</i> , 2001 , 411, 783-6	50.4	59
92	Deformation and melt transport in a highly depleted peridotite massif from the Canadian Cordillera: Implications to seismic anisotropy above subduction zones. <i>Earth and Planetary Science Letters</i> , 2006 , 252, 245-259	5.3	57
91	Feedbacks between deformation and melt distribution in the crust–mantle transition zone of the Oman ophiolite. <i>Earth and Planetary Science Letters</i> , 2012 , 359-360, 61-72	5.3	56
90	Upper-mantle flow beneath French Polynesia from shear wave splitting. <i>Geophysical Journal International</i> , 2007 , 170, 1262-1288	2.6	55
89	Initiation and propagation of shear zones in a heterogeneous continental lithosphere. <i>Journal of Geophysical Research</i> , 1995 , 100, 22083-22101		55
88	Fluid transfer into the wedge controlled by high-pressure hydrofracturing in the cold top-slab mantle. <i>Earth and Planetary Science Letters</i> , 2010 , 297, 271-286	5.3	52
87	Strain-induced seismic anisotropy of wadsleyite polycrystals and flow patterns in the mantle transition zone. <i>Journal of Geophysical Research</i> , 2004 , 109,		52

86	Thermal diffusivity of upper mantle rocks: Influence of temperature, pressure, and the deformation fabric. <i>Journal of Geophysical Research</i> , 2003 , 108,		50
85	The Beni Bousera Peridotite (Rif Belt, Morocco): an Oblique-slip Low-angle Shear Zone Thinning the Subcontinental Mantle Lithosphere. <i>Journal of Petrology</i> , 2014 , 55, 283-313	3.9	49
84	Characterization of hydration in the mantle lithosphere: Peridotite xenoliths from the Ontong Java Plateau as an example. <i>Lithos</i> , 2015 , 212-215, 189-201	2.9	48
83	Plastic deformation and development of antigorite crystal preferred orientation in high-pressure serpentinites. <i>Earth and Planetary Science Letters</i> , 2012 , 349-350, 75-86	5.3	45
82	Slip systems and plastic shear anisotropy in Mg ₂ SiO ₄ ringwoodite: insights from numerical modelling. <i>European Journal of Mineralogy</i> , 2006 , 18, 149-160	2.2	45
81	Hydrogen diffusivity and electrical anisotropy of a peridotite mantle. <i>Geophysical Journal International</i> , 2005 , 160, 1092-1102	2.6	45
80	Anatomy of an extensional shear zone in the mantle, Lanzo massif, Italy. <i>Geochemistry, Geophysics, Geosystems</i> , 2011 , 12, n/a-n/a	3.6	44
79	The effect of dynamic recrystallization on olivine crystal preferred orientations in mantle xenoliths deformed under varied stress conditions. <i>Journal of Structural Geology</i> , 2011 , 33, 1528-1540	3	44
78	Deformation of a pervasively molten middle crust: insights from the neoproterozoic Ribeira-Araúáibrogen (SE Brazil). <i>Terra Nova</i> , 2007 , 19, 278-286	3	43
77	Viscoplasticity of polycrystalline olivine experimentally deformed at high pressure and 900 °C. <i>Tectonophysics</i> , 2014 , 623, 123-135	3.1	42
76	Numerical simulations of depth-dependent anisotropy and frequency-dependent wave propagation effects. <i>Journal of Geophysical Research</i> , 1999 , 104, 23141-23153		42
75	Seismic anisotropy in ocean basins: Resistive drag of the sublithospheric mantle?. <i>Geophysical Research Letters</i> , 1996 , 23, 2991-2994	4.9	40
74	Continental-scale rheological heterogeneities and complex intraplate tectono-metamorphic patterns: insights from a case-study and numerical models. <i>Tectonophysics</i> , 1997 , 279, 327-350	3.1	38
73	Melt-rock interactions, deformation, hydration and seismic properties in the sub-arc lithospheric mantle inferred from xenoliths from seamounts near Lihir, Papua New Guinea. <i>Tectonophysics</i> , 2013 , 608, 330-345	3.1	37
72	Deformation processes and rheology of pyroxenites under lithospheric mantle conditions. <i>Journal of Structural Geology</i> , 2012 , 39, 138-157	3	35
71	Wrench faults down to the asthenosphere: geological and geophysical evidence and thermomechanical effects. <i>Geological Society Special Publication</i> , 2003 , 210, 15-34	1.7	35
70	Deformation in a partially molten mantle: Constraints from plagioclase lherzolites from Lanzo, western Alps. <i>Tectonophysics</i> , 2014 , 615-616, 167-181	3.1	34
69	Deformation, hydration, and anisotropy of the lithospheric mantle in an active rift: Constraints from mantle xenoliths from the North Tanzanian Divergence of the East African Rift. <i>Tectonophysics</i> , 2015 , 639, 34-55	3.1	33

68	Development of texture and seismic anisotropy during the onset of subduction. <i>Geochemistry, Geophysics, Geosystems</i> , 2014 , 15, 192-212	3.6	33
67	Thermal diffusivity of olivine single crystals and a dunite at high temperature: Evidence for heat transfer by radiation in the upper mantle. <i>Physics of the Earth and Planetary Interiors</i> , 2005 , 151, 129-141 ^{2,3}	2.3	33
66	Forsterite to wadsleyite phase transformation under shear stress and consequences for the Earth's mantle transition zone. <i>Physics of the Earth and Planetary Interiors</i> , 2011 , 184, 91-104	2.3	32
65	Fluid-assisted strain localization in the shallow subcontinental lithospheric mantle. <i>Lithos</i> , 2016 , 262, 636-650	2.9	31
64	Analysis of Dynamic Recrystallization of Ice from EBSD Orientation Mapping. <i>Frontiers in Earth Science</i> , 2015 , 3,	3.5	30
63	Microstructures and seismic properties of south Patagonian mantle xenoliths (Gobernador Gregores and Pali Aike). <i>Tectonophysics</i> , 2014 , 621, 175-197	3.1	28
62	Intraplate continental deformation: Influence of a heat-producing layer in the lithospheric mantle. <i>Earth and Planetary Science Letters</i> , 2008 , 274, 392-400	5.3	28
61	Strain Localization in Pyroxenite by Reaction-Enhanced Softening in the Shallow Subcontinental Lithospheric Mantle. <i>Journal of Petrology</i> , 2013 , 54, 1997-2031	3.9	27
60	Microstructures, composition, and seismic properties of the Ontong Java Plateau mantle root. <i>Geochemistry, Geophysics, Geosystems</i> , 2014 , 15, 4547-4569	3.6	26
59	Characterization of the sub-continental lithospheric mantle beneath the Cameroon volcanic line inferred from alkaline basalt hosted peridotite xenoliths from Barombi Mbo and Nyos Lakes. <i>Journal of African Earth Sciences</i> , 2015 , 111, 170-193	2.2	24
58	Low steady-state stresses in the cold lithospheric mantle inferred from dislocation dynamics models of dislocation creep in olivine. <i>Earth and Planetary Science Letters</i> , 2015 , 432, 232-242	5.3	24
57	PLUME investigates South Pacific Superswell. <i>Eos</i> , 2002 , 83, 511	1.5	24
56	A multiscale approach to model the anisotropic deformation of lithospheric plates. <i>Geochemistry, Geophysics, Geosystems</i> , 2009 , 10, n/a-n/a	3.6	23
55	Plume-lithosphere interaction beneath a fast moving plate. <i>Geophysical Research Letters</i> , 2006 , 33, n/a-n/a ^{2,3}	2.3	23
54	On topotaxy and compaction during antigorite and chlorite dehydration: an experimental and natural study. <i>Contributions To Mineralogy and Petrology</i> , 2015 , 169, 1	3.5	22
53	Modeling the effect of subgrain rotation recrystallization on the evolution of olivine crystal preferred orientations in simple shear. <i>Earth and Planetary Science Letters</i> , 2015 , 430, 356-366	5.3	22
52	Small-scale convection in a plume-fed low-viscosity layer beneath a moving plate. <i>Geophysical Journal International</i> , 2013 , 194, 591-610	2.6	22
51	Mantle tectonics beneath New Zealand inferred from SKS splitting and petrophysics. <i>Geophysical Journal International</i> , 2005 , 163, 760-774	2.6	22

50	Petrophysical constraints on the seismic properties of the Kaapvaal craton mantle root. <i>Solid Earth</i> , 2014 , 5, 45-63	3.3	20
49	Composition, textures, seismic and thermal anisotropies of xenoliths from a thin and hot lithospheric mantle (Summit Lake, southern Canadian Cordillera). <i>Tectonophysics</i> , 2011 , 507, 1-15	3.1	20
48	Hydrous melts weaken the mantle, crystallization of pargasite and phlogopite does not: Insights from a petrostructural study of the Finero peridotites, southern Alps. <i>Earth and Planetary Science Letters</i> , 2017 , 477, 59-72	5.3	19
47	Oriented growth of garnet by topotactic reactions and epitaxy in high-pressure, mafic garnet granulite formed by dehydration melting of metastable hornblende-gabbro-norite (Jijal Complex, Kohistan Complex, north Pakistan). <i>Journal of Metamorphic Geology</i> , 2008 , 26, 855-870	4.4	19
46	Flow and electrical anisotropy in the upper mantle: Finite-element models constraints on the effects of olivine crystal preferred orientation and microstructure. <i>Physics of the Earth and Planetary Interiors</i> , 2006 , 158, 92-106	2.3	19
45	Seismic properties of the supra-subduction mantle: Constraints from peridotite xenoliths from the Avacha volcano, southern Kamchatka. <i>Geophysical Research Letters</i> , 2010 , 37, n/a-n/a	4.9	17
44	Thermal diffusivity of olivine single-crystals and polycrystalline aggregates at ambient conditions: comparison. <i>Geophysical Research Letters</i> , 2003 , 30,	4.9	17
43	Fluid-Enhanced Annealing in the Subcontinental Lithospheric Mantle Beneath the Westernmost Margin of the Carpathian-Pannonian Extensional Basin System. <i>Tectonics</i> , 2017 , 36, 2987-3011	4.3	16
42	Recrystallization processes, microstructure and crystallographic preferred orientation evolution in polycrystalline ice during high-temperature simple shear. <i>Cryosphere</i> , 2019 , 13, 1495-1511	5.5	15
41	Deformation, annealing, reactive melt percolation, and seismic anisotropy in the lithospheric mantle beneath the southeastern Ethiopian rift: Constraints from mantle xenoliths from Mega. <i>Tectonophysics</i> , 2016 , 682, 186-205	3.1	15
40	Non-basal dislocations should be accounted for in simulating ice mass flow. <i>Earth and Planetary Science Letters</i> , 2017 , 473, 247-255	5.3	15
39	Predicting the seismic implications of salt anisotropy using numerical simulations of halite deformation. <i>Geophysics</i> , 2000 , 65, 1272-1280	3.1	15
38	Numerical modelling of the upper-mantle anisotropy beneath a migrating strike-slip plate boundary: the San Andreas Fault system. <i>Geophysical Journal International</i> , 2012 , 191, 436-458	2.6	14
37	Transcurrent Shear Zones and Magma Emplacement in Neoproterozoic Belts of Brazil. <i>Petrology and Structural Geology</i> , 1997 , 275-293		14
36	Mantle-driven deformation of orogenic zones and clutch tectonics. <i>Geological Society Special Publication</i> , 2004 , 227, 41-64	1.7	14
35	Investigation of nucleation processes during dynamic recrystallization of ice using cryo-EBSD. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2017 , 375,	3	13
34	Deformation, crystal preferred orientations, and seismic anisotropy in the Earth's D ₂ layer. <i>Earth and Planetary Science Letters</i> , 2018 , 492, 35-46	5.3	13
33	Microstructures, Water Contents, and Seismic Properties of the Mantle Lithosphere Beneath the Northern Limit of the Hangay Dome, Mongolia. <i>Geochemistry, Geophysics, Geosystems</i> , 2019 , 20, 183-207 ^{3.6}		13

32	Dislocation dynamics modelling of the power-law breakdown in olivine single crystals: Toward a unified creep law for the upper mantle. <i>Earth and Planetary Science Letters</i> , 2019 , 506, 282-291	5.3	13
31	Metasomatized Mantle Xenoliths as a Record of the Lithospheric Mantle Evolution of the Northern Edge of the Ahaggar Swell, In Teria (Algeria). <i>Journal of Petrology</i> , 2016 , 57, 345-382	3.9	12
30	Crystallographic Texture Evolution of a Zinc Sheet Subjected to Different Strain Paths. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2017 , 48, 2858-2867	7.3	11
29	Dislocation-driven recrystallization in AZ31B magnesium alloy imaged by quasi-in situ EBSD in annealing experiments. <i>Materials Characterization</i> , 2020 , 165, 110382	3.9	11
28	Refertilization Processes in the Subcontinental Lithospheric Mantle: the Record of the Beni Bousera Orogenic Peridotite (Rif Belt, Northern Morocco). <i>Journal of Petrology</i> , 2016 , 57, 2251-2270	3.9	11
27	Lateral and Vertical Heterogeneity in the Lithospheric Mantle at the Northern Margin of the Pannonian Basin Reconstructed From Peridotite Xenolith Microstructures. <i>Journal of Geophysical Research: Solid Earth</i> , 2019 , 124, 6315-6336	3.6	10
26	Microstructural evolution during thermal annealing of ice-I h. <i>Journal of Structural Geology</i> , 2017 , 99, 31-44	3	9
25	Flow in the western Mediterranean shallow mantle: Insights from xenoliths in Pliocene alkali basalts from SE Iberia (eastern Betics, Spain). <i>Tectonics</i> , 2016 , 35, 2657-2676	4.3	9
24	Crust-mantle coupling during continental convergence and break-up: Constraints from peridotite xenoliths from the Borborema Province, northeast Brazil. <i>Tectonophysics</i> , 2019 , 766, 249-269	3.1	8
23	Deformation, Annealing, Melt-Rock Interaction, and Seismic Properties of an Old Domain of the Equatorial Atlantic Lithospheric Mantle. <i>Tectonics</i> , 2019 , 38, 1164-1188	4.3	8
22	Non-hydrostatic stress field orientation inferred from orthopyroxene (Pbc) to low-clinoenstatite (P21/c) inversion in partially dehydrated serpentinites. <i>American Mineralogist</i> , 2018 , 103, 993-1001	2.9	8
21	Predicting viscoplastic anisotropy in the upper mantle: a comparison between experiments and polycrystal plasticity models. <i>Physics of the Earth and Planetary Interiors</i> , 2019 , 286, 69-80	2.3	6
20	How partial melting affects small-scale convection in a plume-fed sublithospheric layer beneath fast-moving plates. <i>Geochemistry, Geophysics, Geosystems</i> , 2015 , 16, 3924-3945	3.6	5
19	Modeling Strain and Anisotropy Along the Alpine Fault, South Island, New Zealand. <i>Geophysical Monograph Series</i> , 2007 , 289-305	1.1	5
18	Comment on the article Probability of radial anisotropy in the deep mantle by Visser et al. (2008) EPSL 270:241-250. <i>Earth and Planetary Science Letters</i> , 2008 , 276, 223-225	5.3	4
17	The Borborema Strike-Slip Shear Zone System (NE Brazil): Large-Scale Intracontinental Strain Localization in a Heterogeneous Plate. <i>Lithosphere</i> , 2021 , 2021,	2.7	4
16	Textural and Compositional Changes in the Lithospheric Mantle Atop the Hawaiian Plume: Consequences for Seismic Properties. <i>Geochemistry, Geophysics, Geosystems</i> , 2020 , 21, e2020GC009138	3.6	4
15	Strain Localization in the Root of Detachment Faults at a Melt-Starved Mid-Ocean Ridge: A Microstructural Study of Abyssal Peridotites From the Southwest Indian Ridge. <i>Geochemistry, Geophysics, Geosystems</i> , 2021 , 22, e2020GC009434	3.6	4

14	Interplay between Fluid Extraction Mechanisms and Antigorite Dehydration Reactions (Val Malenco, Italian Alps). <i>Journal of Petrology</i> , 2019 , 60, 1935-1962	3.9	4
13	Using thermo-mechanical models of subduction to constrain effective mantle viscosity. <i>Earth and Planetary Science Letters</i> , 2020 , 539, 116243	5.3	4
12	Interplay between melt infiltration and deformation in the deep lithospheric mantle (External Liguride ophiolite, North Italy). <i>Lithos</i> , 2021 , 380-381, 105855	2.9	4
11	Porphyroclasts: Source and Sink of Major and Trace Elements During Deformation-Induced Metasomatism (Finero, Ivrea-Verbano Zone, Italy). <i>Geosciences (Switzerland)</i> , 2020 , 10, 196	2.7	3
10	On the role of solute drag in reconciling laboratory and natural constraints on olivine grain growth kinetics. <i>Geophysical Journal International</i> , 2020 , 224, 1360-1370	2.6	3
9	Microstructure and seismic properties of amphibole-rich rocks from the deep crust in southern Tibet. <i>Tectonophysics</i> , 2021 , 811, 228869	3.1	3
8	Petrophysical constraints on the seismic properties of the Kaapvaal craton mantle root 2013 ,		2
7	Olivine-induced viscous anisotropy in fossil strike-slip mantle shear zones and associated strain localization in the crust. <i>Geophysical Journal International</i> , 2020 , 224, 608-625	2.6	2
6	Dynamic recrystallization by subgrain rotation in olivine revealed by electron backscatter diffraction. <i>Tectonophysics</i> , 2021 , 815, 228916	3.1	2
5	The S _B Francisco cratonic root beneath the Neoproterozoic Brasilia belt (Brazil): Petrophysical data from kimberlite xenoliths. <i>Tectonophysics</i> , 2021 , 816, 229011	3.1	1
4	Deformation of upper mantle rocks with contrasting initial fabrics in axial extension. <i>Tectonophysics</i> , 2021 , 815, 228997	3.1	0
3	Anhydrous Phase B: Transmission Electron Microscope Characterization and Elastic Properties. <i>Geochemistry, Geophysics, Geosystems</i> , 2019 , 20, 4059-4072	3.6	
2	Shallow Mantle Composition and Dynamics: Fifth International Orogenic Lherzolite Conference: Foreword. <i>Journal of Petrology</i> , 2010 , 51, 3-7	3.9	
1	From dry to damp and stiff mantle lithosphere by reactive melt percolation atop the Hawaiian plume. <i>Earth and Planetary Science Letters</i> , 2021 , 574, 117159	5.3	