

# Petra Becker

## List of Publications by Year in descending order

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83  
papers

2,871  
citations

331259

21  
h-index

174990

52  
g-index

87  
all docs

87  
docs citations

87  
times ranked

2104  
citing authors

#	ARTICLE	IF	CITATIONS
1	Borate Materials in Nonlinear Optics. <i>Advanced Materials</i> , 1998, 10, 979-992.	11.1	1,345
2	Top-seeded growth of bismuth triborate, BiB3O6. <i>Journal of Crystal Growth</i> , 1999, 203, 149-155.	0.7	134
3	Thermal and optical properties of glasses of the system Bi2O3 - B2O3. <i>Crystal Research and Technology</i> , 2003, 38, 74-82.	0.6	102
4	Monoclinic bismuth triborate BiB3O6 - a new efficient $\hat{\Gamma}(2)+\hat{\Gamma}(3)$ -nonlinear crystal: multiple stimulated Raman scattering and self-sum-frequency lasing effects. <i>Optics Communications</i> , 2002, 206, 179-191.	1.0	79
5	Piezoelectric and elastic properties of the nonlinear optical material bismuth triborate, BiB3O6. <i>Applied Physics A: Materials Science and Processing</i> , 2006, 82, 495-502.	1.1	62
6	Tetragonal Ba <sub>2</sub> MgGe <sub>2</sub> O <sub>7</sub> - a novel multifunctional optical crystal with numerous manifestations of nonlinear-laser effects: almost sesqui-octave Stokes and anti-Stokes combs and cascaded $\hat{\Gamma}(3)\hat{\Gamma}(2)$ lasing with involved second and third harmonic generation. <i>Laser Physics Letters</i> , 2008, 5, 845-868.	0.6	56
7	Optical properties of the germanate melilites Sr <sub>2</sub> MgGe <sub>2</sub> O <sub>7</sub> , Sr <sub>2</sub> ZnGe <sub>2</sub> O <sub>7</sub> and Ba <sub>2</sub> ZnGe <sub>2</sub> O <sub>7</sub> . <i>Crystal Research and Technology</i> , 2009, 44, 603-612.	0.6	50
8	High-field quantum disordered state in $\hat{\Gamma}(2)$ spin-orbit entangled moments in $\hat{\Gamma}(2)$ : Spin flips, bound states, and multiparticle continuum. <i>Physical Review B</i> , 2020, 101, .	1.1	40
9	Spin-orbit entangled moments in $\hat{\Gamma}(2)$ : A frustrated fcc quantum magnet. <i>Physical Review B</i> , 2019, 100, .	1.1	40
10	Observation of many-phonon stimulated Raman scattering and related cascaded nonlinear-laser effects in monoclinic LaBO2MoO4 single crystals. <i>Laser Physics Letters</i> , 2008, 5, 114-121.	0.6	37
11	New nonlinear laser effects in $\hat{\Gamma}(2)$ -quartz: generation of a two-octave Stokes and anti-Stokes comb and cascaded lasing in the spectral range of the second and third harmonics. <i>Physics-Uspekhi</i> , 2008, 51, 899-909.	0.8	36
12	Thermodynamic properties of the new multiferroic material (NH <sub>4</sub> ) <sub>2</sub> [FeCl <sub>5</sub> (H <sub>2</sub> O)]. <i>New Journal of Physics</i> , 2013, 15, 123001.	1.2	36
13	Stimulated Raman scattering in natural crystals of SrSO <sub>4</sub> , BaSO <sub>4</sub> and PbSO <sub>4</sub> : High-order Stokes and anti-Stokes generation with a single-wavelength UV, visible, and near-IR excitation, as well as cascaded up-conversion nonlinear $\hat{\Gamma}(3)\hat{\Gamma}(3)$ lasing effects under dual-wavelength picosecond collinear coherent pumping. <i>Applied Physics B: Lasers and Optics</i> , 2011, 105, 363-378.	2.9	35
14	Stimulated Raman scattering in natural crystals of SrSO <sub>4</sub> , BaSO <sub>4</sub> and PbSO <sub>4</sub> : High-order Stokes and anti-Stokes generation with a single-wavelength UV, visible, and near-IR excitation, as well as cascaded up-conversion nonlinear $\hat{\Gamma}(3)\hat{\Gamma}(3)$ lasing effects under dual-wavelength picosecond collinear coherent pumping. <i>Applied Physics B: Lasers and Optics</i> , 2011, 105, 363-378.	1.1	31
15	Wide-band Raman Stokes and anti-Stokes comb lasing in a BaF <sub>2</sub> single crystal under picosecond pumping. <i>Laser Physics Letters</i> , 2008, 5, 304-310.	0.6	30
16	Resonant inelastic x-ray incarnation of Young's double-slit experiment. <i>Science Advances</i> , 2019, 5, eaav4020.	4.7	29
17	Crystal Growth and Spectroscopic Characterisation of BiB3O6:RE3+ (RE3+ = Pr3+, Nd3+, Gd3+, Er3+), Tj ETQq1 1 0.784314 ggBT/Overl	0.6	28
18	Thermal Expansion of Bismuth Triborate. <i>Crystal Research and Technology</i> , 2001, 36, 1175.	0.6	28

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19	Critical Slowing Down near the Multiferroic Phase Transition in $MnWO_4$ . Physical Review Letters, 2015, 114, 037204.	2.9	27
20	Non-centrosymmetric tetragonal $Sr_2ZnGe_2O_7$ - a novel melilite-type nonlinear-laser crystal offering $\chi^{(2)}$ , $\chi^{(3)}$ , and cascaded $\chi^{(3)}$ interactions. Laser Physics Letters, 2010, 7, 367-377.	0.6	25
21	Manifestations of new $\chi^{(3)}$ -nonlinear laser interactions in calcite ( $CaCO_3$ ) single crystals under one-micron picosecond pumping: more than two-octave spanned Stokes and anti-Stokes multi-wavelength comb and third harmonic generation via cascaded parametric lasing. Laser Physics Letters, 2010, 7, 142-152.	0.6	24
22	X-ray diffraction study of the piezoelectric properties of $BiB_3O_6$ single crystals. Zeitschrift für Kristallographie, 2007, 222, 396-401.	1.1	21
23	Temperature-dependent X-ray and neutron diffraction study of $BiB_3O_6$ . Zeitschrift für Kristallographie - Crystalline Materials, 2007, 222, .	0.4	21
24	Domain dynamics in the multiferroic phase of $MnWO_4$ . Physical Review B, 2014, 89, .	1.1	21
25	Non-centrosymmetric $Y(HCOO)_3 \cdot \frac{1}{2} H_2O$ crystal. A new inorganic material for Raman lasers with large frequency shift of three promoting vibration modes of its [O-CH-O]- formate anions: effective high-order Stokes and anti-Stokes generation and cascaded self-frequency $\chi^{(3)}$ (SRS) $\chi^{(2)}$ (SHG, SFM) and $\chi^{(2)}$ (SHG, SFM) $\chi^{(3)}$ (SRS) conversions. Physica Status Solidi A, 2004, 201, 3200-3216.	1.7	20
26	Trigonal $Na_3Li(MoO_4)_2 \cdot 6H_2O$ - a new many-phonon SRS molybdate crystal offering numerous nonlinear-laser interactions: several cascaded lasing ( $\chi^{(3)}$ $\chi^{(2)}$ ) effects and more than sesqui-octave Stokes and anti-Stokes comb generation under one-micron picosecond pumping. Laser Physics Letters, 2009, 6, 335-350.	0.6	19
27	Orthorhombic tris(glycine) zinc chloride $Gly_3 \cdot \frac{1}{2} ZnCl_2 \cdot \frac{1}{2} H_2O$ a new semi-organic many-phonon SRS crystal manifesting different nonlinear-laser ( $\chi^{(3)}$ $\chi^{(2)}$ ) interactions under one-micron picosecond pumping. Laser Physics Letters, 2009, 6, 872-885.	0.6	19
28	Many-phonon stimulated Raman scattering and related cascaded and cross-cascaded $\chi^{(3)}$ -nonlinear optical effects in melilite-type crystal $Ca_2ZnSi_2O_7$ . Laser Physics Letters, 2011, 8, 859-874.	0.6	19
29	Stimulated Raman scattering spectroscopy and $\chi^{(3)}$ -nonlinear lasing effects in single crystals of aragonite (orthorhombic $CaCO_3$ ). Laser Physics Letters, 2012, 9, 259-284.	0.6	18
30	Monoclinic $LaBO_2MoO_4 \cdot Nd^{3+}$ - a new SE- and ( $\chi^{(2)}$ $\chi^{(3)}$ )-active crystal for multifunctional lasers. Laser Physics Letters, 2008, 5, 737-745.	0.6	17
31	Crystal growth, crystal structure, vibrational spectroscopy, linear and nonlinear optical properties of guanidinium phosphates. Optical Materials, 2017, 69, 420-431.	1.7	17
32	Multiple spin-orbit excitons and the electronic structure of $\hat{\chi}^{\sim}RuCl_3$ . Physical Review Research, 2020, 2, .	1.3	17
33	Manifestations of nonlinear optical effects in a novel SRS-active crystal $Al_2(F_{10}x)(OH)_2SiO_4$ : many-phonon $\chi^{(3)}$ -lasing, more than sesqui-octave Stokes and anti-Stokes multi-wavelength comb lasing, cascaded and cross-cascaded $\chi^{(3)}$ $\chi^{(3)}$ Raman-induced interactions under single- and dual-wavelength picosecond collinear coherent pumping. THG and combined SRS-promoting phonon modes. Laser Physics Letters, 2013, 10, 073001.	0.6	16
34	Stimulated Raman scattering in monoclinic non-centrosymmetric guanylurea(1+) hydrogen phosphite (GUHP). Physica Status Solidi (B): Basic Research, 2013, 250, 1837-1856.	0.7	16
35	Cerium triborate, $CeB_3O_6$ . Acta Crystallographica Section E: Structure Reports Online, 2004, 60, i134-i135.	0.2	14
36	Monoclinic ethylenediamine (+)-tartrate $(NH_3CH_2CH_2NH_3)(+)-C_4H_4O_6$ (EDT) $\hat{\chi}^{\sim}$ a new organic non-centrosymmetric crystal for Raman laser converters with large ( $\hat{\omega}^{\sim} 3000$ cm <sup>-1</sup> ) frequency shifts. Laser Physics Letters, 2007, 4, 291-303.	0.6	14

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37	Detection of a new SRS-promoting phonon mode and cross-cascaded $I_{\uparrow}^{(3)}$ -nonlinear lasing in single crystals of calcite (trigonal $\text{CaCO}_3$ ). <i>Laser and Photonics Reviews</i> , 2012, 6, 690-701.	4.4	14
38	Observation of Unconventional Dynamics of Domain Walls in Uniaxial Ferroelectric Lead Germanate. <i>Advanced Functional Materials</i> , 2020, 30, 2000284.	7.8	14
39	Non-centrosymmetric molybdates $\text{CsLiMoO}_4$ and $\text{CsLiMoO}_4 \cdot \text{H}_2\text{O}$ : crystal growth, polymorphism, efficient Stokes and anti-Stokes generation and cascaded self-frequency $[I_{\uparrow}^{(3)}(\text{SRS}) \rightarrow I_{\uparrow}^{(2)}(\text{SFM})]$ conversion effects. <i>Physica Status Solidi A</i> , 2005, 202, 2543-2564.	1.7	13
40	Crystal Growth and Basic Characterisation of the Bismuth Borate $\text{Bi}_2\text{B}_8\text{O}_{15}$ . <i>Crystal Research and Technology</i> , 2001, 36, 1353.	0.6	12
41	Monoclinic modification of polymorphic $\text{Tb}_3\text{B}_3\text{O}_6$ . <i>Acta Crystallographica Section E: Structure Reports Online</i> , 2003, 59, i83-i85.	0.2	12
42	Cubic $\text{N}(\text{CH}_2\text{CH}_2\text{NH}_3)_3\text{Br}_3$ crystal – a novel non-centrosymmetric organic material for Raman laser converters with large frequency shift. <i>Laser Physics Letters</i> , 2006, 3, 490-494.	0.6	12
43	Linear and nonlinear optical properties of yttrium formate dihydrate, $\text{Y}(\text{HCOO})_3 \cdot 2\text{H}_2\text{O}$ . <i>Applied Physics B: Lasers and Optics</i> , 2007, 86, 523-527.	1.1	12
44	Cascaded nonlinear-laser interactions in melilite-type crystals of $\text{Sr}_2\text{MgGe}_2\text{O}_7$ and $\text{Ba}_2\text{ZnGe}_2\text{O}_7$ . <i>Laser Physics Letters</i> , 0, 7, 528-543.	0.6	12
45	Room-temperature high-order Stokes and anti-Stokes generation in orthorhombic ferroelectric-ferroelastic $\text{K}_3\text{Nb}_3\text{O}_6(\text{BO}_3)_2$ crystal. <i>Physica Status Solidi A</i> , 2004, 201, 2154-2169.	1.7	11
46	More than two-octaves span of the Stokes and anti-Stokes picosecond lasing comb in orthorhombic natural single crystals of celestine, $\text{SrSO}_4$ . <i>Laser Physics Letters</i> , 2010, 7, 743-751.	0.6	11
47	Linear optical properties and Raman spectroscopy of natural fluorapatite. <i>Crystal Research and Technology</i> , 2016, 51, 282-289.	0.6	11
48	Crystal Growth, Thermal and Linear Optical Properties of $\text{LiGeBO}_4$ . <i>Crystal Research and Technology</i> , 2001, 36, 119-126.	0.6	9
49	Beryllium Silicate, $\text{Be}_2\text{SiO}_4$ (phenakite) – a Novel Trigonal SRS-Active Crystal. <i>Laser and Photonics Reviews</i> , 2014, 8, 324-331.	4.4	9
50	Crystal growth, crystal structure and pyroelectric properties of the polar hexagonal antimony tartrates $\text{M}[\text{Sb}_2(\text{C}_4\text{H}_2\text{O}_6)_2] \cdot 2\text{H}_2\text{O}$ ( $\text{M} = \text{Ca, Sr, Pb}$ ). <i>Crystal Research and Technology</i> , 2015, 50, 482-489.	0.6	9
51	Cocrystals of 2-Aminopyrimidine with Boric Acid – Crystal Engineering of a Novel Nonlinear Optically (NLO) Active Crystal. <i>Crystals</i> , 2019, 9, 403.	1.0	9
52	Polymorphy of monoclinic terbium triborate, $\text{Tb}_3\text{B}_3\text{O}_6$ . <i>Crystal Research and Technology</i> , 2008, 43, 1240-1246.	0.6	8
53	Nonlinear optical properties of strontium tartrato-antimonate(III) dihydrate, $\text{Sr}[\text{Sb}_2(+)\text{C}_4\text{H}_2\text{O}_6]_2 \cdot 2\text{H}_2\text{O}$ . <i>Crystal Research and Technology</i> , 2008, 43, 508-513.	0.6	8
54	Second harmonic generation in melilite-type $\text{Ba}_2\text{MgGe}_2\text{O}_7$ . <i>Physica Status Solidi (B): Basic Research</i> , 2009, 246, 1674-1676.	0.7	8

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55	Temperature-dependent thermo-mechanical and Raman spectroscopy study of the SRS-active melilite-type crystal $\text{Ca}_2\text{ZnSi}_2\text{O}_7$ (hardystonite) at its incommensurate-commensurate phase transition. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2012, 209, 327-334.	0.8	8
56	Cerussite, $\text{PbCO}_3$ – a new Stimulated Raman Scattering (SRS)-active crystal with high-order Stokes and anti-Stokes lasing. <i>Laser and Photonics Reviews</i> , 2013, 7, 425-431.	4.4	8
57	Zircon, $\text{ZrSiO}_4$ - A novel SRS-active crystal. <i>Physica Status Solidi (B): Basic Research</i> , 2015, 252, 305-315.	0.7	8
58	Evidence for polarized nanoregions from the domain dynamics in multiferroic $\text{LiCuVO}_4$ . <i>Scientific Reports</i> , 2019, 9, 4391.	1.6	8
59	Stimulated emission (4F3/2 $\rightarrow$ 4I11/2 channel) with LD and Xe-flashlamp pumping of tetragonal, incommensurately modulated $\text{Ca}_2\text{MgSi}_2\text{O}_7:\text{Nd}^{3+}(\text{Na}^+)$ - a new disordered laser crystal. <i>Laser Physics Letters</i> , 2010, 7, 876-883.	0.6	7
60	Europium triborate, $\text{EuB}_3\text{O}_6$ . <i>Acta Crystallographica Section E: Structure Reports Online</i> , 2004, 60, i131-i133.	0.2	6
61	Optical properties of non-centrosymmetric mixed crystals $\text{K}_2(\text{La}_x\text{Ce}_{1-x})(\text{NO}_3)_5 \cdot 2\text{H}_2\text{O}$ ( $x = 0.0 - 1.0$ ). <i>Crystal Research and Technology</i> , 2009, 44, 1131-1138.	0.6	6
62	CW one-micron (4F3/2-4I11/2) laser oscillation of $\text{Nd}^{3+}$ ions in the melilite-type crystal $\text{Ca}_2\text{MgSi}_2\text{O}_7:\text{Nd}^{3+}(\text{Na}^+)$ at its incommensurate-commensurate phase transition. <i>Applied Physics B: Lasers and Optics</i> , 2011, 103, 629-635.	1.1	6
63	Trigonal $\text{Na}_3\text{Li}(\text{SeO}_4)_2 \cdot 6\text{H}_2\text{O}$ crystal – a novel SRS-active material with high Raman gain coefficient. <i>Physica Status Solidi - Rapid Research Letters</i> , 2007, 1, R16-R18.	1.2	5
64	Non-centrosymmetric rubidium rare-earth nitrates $\text{Rb}_2\text{RE}(\text{NO}_3)_5 \cdot 4\text{H}_2\text{O}$ : Crystal growth and optical properties. <i>Zeitschrift Fur Anorganische Und Allgemeine Chemie</i> , 2009, 635, 2236-2241.	0.6	5
65	Phosgenite, $\text{Pb}_2\text{CO}_3\text{Cl}_2$ – a novel SRS-active crystal. <i>Physica Status Solidi - Rapid Research Letters</i> , 2013, 7, 429-433.	1.2	5
66	Single crystals of guanidinium zinc sulfate, $[\text{C}(\text{NH}_2)_3]_2\text{Zn}(\text{SO}_4)_2$ – growth, structure, vibrational spectroscopy and stimulated Raman scattering. <i>Zeitschrift Fur Kristallographie - Crystalline Materials</i> , 2015, 230, 639-649.	0.4	5
67	Crystal growth, thermal expansion, pyroelectricity and vibrational spectroscopy of barium antimony tartrate, $\text{Ba}[\text{Sb}_2(\text{C}_4\text{H}_2\text{O}_6)_2] \cdot 3\text{H}_2\text{O}$ . <i>Optical Materials</i> , 2019, 91, 70-79.	1.7	5
68	Linear and nonlinear optical properties, pyroelectricity and vibrational spectroscopy of polar guanidinium hydrogen phosphite, $\text{GuH}_2\text{PO}_3$ , and hydrogen selenite, $\text{GuHSeO}_3$ . <i>Optical Materials</i> , 2021, 111, 110722.	1.7	5
69	New Materials for Optical Frequency Conversion via Stimulated Raman Scattering and Cascaded $\ddot{\ddot{3}}(3)\ddot{\ddot{1}}$ $\ddot{\ddot{2}}$ Processes. <i>Ferroelectrics</i> , 2007, 352, 42-49.	0.3	4
70	Mechanical, thermo-mechanical and piezoelectric properties of rare earth formates $\text{Y}(\text{HCOO})_3 \cdot 2\text{H}_2\text{O}$ and $\text{Er}(\text{HCOO})_3 \cdot 2\text{H}_2\text{O}$ . <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2007, 204, 745-754.	0.8	4
71	Non-Centrosymmetric Ammonium Rare Earth Nitrates $(\text{NH}_4)_2\text{Ln}(\text{NO}_3)_5 \cdot 4\text{H}_2\text{O}$ - Crystal Structure, Crystal Growth and Optical Properties. <i>European Journal of Inorganic Chemistry</i> , 2010, 2010, 2642-2648.	1.0	4
72	Observation of chiral solitons in $\text{LiCuVO}_4$ . <i>Communications Physics</i> , 2022, 5, .	2.0	4

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73	Pyroelectric properties of the monoclinic rare earth nitrates $\text{Ln}_2(\text{NO}_3)_5 \cdot 4\text{H}_2\text{O}$ ( $\text{Ln} = \text{NH}_4, \text{Rb}; \text{Ln} = \text{Tl}, \text{Bi}$ ). <i>Journal of Solid State Chemistry</i> , 2017, 103, 784314.	1.0	3
74	Stimulated Raman scattering in natural crystals of fluorapatite, $\text{Ca}_5(\text{PO}_4)_3\text{F}$ . <i>Laser and Photonics Reviews</i> , 2016, 10, 814-825.	4.4	3
75	Observation of stimulated Raman scattering in polar tetragonal crystals of barium antimony tartrate trihydrate, $\text{Ba}[\text{Sb}_2(\text{C}_4\text{H}_2\text{O}_6)_2] \cdot 3\text{H}_2\text{O}$ . <i>Annalen Der Physik</i> , 2017, 529, 1600295.	0.9	3
76	Spodumene, $\text{LiAlSi}_2\text{O}_6$ : A new natural SRS-active crystal with three $\Gamma_3$ -promoting vibrational modes. <i>Optical Materials</i> , 2018, 78, 235-246.	1.7	3
77	Inelastic light scattering in the spin cluster Mott insulator $\text{Cu}_2\text{OSeO}_3$ . <i>Physical Review B</i> , 2019, 100, .	1.1	3
78	Coupled dynamics of long-range and cluster-internal spin order in the cluster Mott insulator $\text{Cu}_2\text{OSeO}_3$ . <i>Physical Review B</i> , 2019, 100, .	1.1	2
79	Stimulated Raman Scattering in Melilite-Type Crystals $\text{Ca}_2\text{MgSi}_2\text{O}_7$ and $\text{Ca}_2\text{Ga}_2\text{SiO}_7$ . <i>Crystal Research and Technology</i> , 2020, 55, 2000038.	0.6	2
80	Multiple field-induced phases in the frustrated triangular magnet $\text{CsMnCl}_3$ . <i>Physical Review B</i> , 2021, 104, .	1.3	2
81	Thermal and Optical Properties of Glasses of the System $\text{Bi}_2\text{O}_3\text{-B}_2\text{O}_3$ . <i>ChemInform</i> , 2003, 34, no.	0.1	0
82	Triclinic Pedial Sarcosinium Hydrogen (+)-Tartrate Crystal Growth, Pyroelectricity, Thermal Expansion, and Linear Optical Properties. <i>Crystal Research and Technology</i> , 2020, 55, 1900040.	0.6	0
83	Stimulated Raman Scattering (SRS) in $\text{AlOOH}$ (Diaspore). <i>Crystal Research and Technology</i> , 0, , 2100055.	0.6	0