

CURRICULUM VITAE

PROF VLADIMIR P. DMITRIEV

Born April 1, 1949, Voronej, Russia.
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SCHOOL AND UNIVERSITY TRAINING

- University of Rostov-on-Don, Rostov-on-Don: BSc (1969) (Solid State Physics)
: MSc (Solid State Physics) (1971)
: *Thesis* –
Raman spectroscopy of ferroelectric crystals.
Promoter: Professor LM Rabkin
- University of Rostov-on-Don, Rostov-on-Don: PhD (1979) (Solid State Physics)
: *Thesis* –
Raman spectra and Phase Transitions in Hydrogen-bonded Sulphate and Selenate Crystals;
Promoter: Professor LM Rabkin
- National Institute of Chemistry, Ljubliana, Slovenia : Post-doctoral fellowship (1983-1984)
Phase transformations in hydrogen-bonded crystals as a research fellow of Professors Dusan Hadji and Robert Blinc
- Institute for Low Temperature Physics, Kharkov (USSR) : Doctor of Science (1992)
: *Thesis* –
Phenomenological models of reconstructive phase transitions
- The Department of Physics, University of Picardie, Amiens, France : Visiting Fellow (2months x3 during 1990-1992)
Research on reconstructive phase transitions in collaboration with Prof Pierre Toledano
- The Department of Earth Science, University of Cambridge, UK : Visiting Fellow (June-July 1996)
Research on phase transitions in minerals in collaboration with Prof EKH Salje
- The Department of Experimental Physics, University of Sao Paulo, Brazil : Visiting Fellow (June – August 1997)
Research on complex fluids/lyotropic liquid crystals in collaboration with Prof Antonio Figueiredo Neto
- The Department of Physics, University of Santa Catarina, Brazil : Visiting Professor (March 1998 – October 1999)
Research on complex fluids/lyotropic liquid crystals in collaboration with Prof Gerson Ouriques
- The School of Electrochemistry, National Institute of Technology, Grenoble, France : Visiting Fellow (December 2001 – November 2002)
Research on structure and stability of nanocrystals in collaboration with Prof Guy Lucazeau

EMPLOYMENT

- (1) Department of Solid State Physics (1971).
Junior Research Fellow at the Laboratory of Spectroscopy, University of Rostov-on-Don.
- (2) Department of Solid State Physics (1976).
Junior Research Fellow, Institute of Physics, University of Rostov-on-Don.
- (3) Institute of Physics at the University of Rostov-on-Don (1986 – April 1998).
Dr Dmitriev was appointed as Head of the Laboratory of Raman Spectroscopy.
- (4) Appointed Research Director of the Institute of Physics at the University of Rostov-on-Don (1988 – 1992).
- (5) Appointed Professor of Physics at the University of Rostov-on-Don (1992 – present)
- (6) Appointed Head of the Department of Crystal Physics and Crystallography at the University of Rostov-on-Don (1996 – 2002).
- (7) Appointed Director of the Swiss-Norwegian Beamlines at ESRF, France (2004 – present).

RESEARCH INTERESTS

Prof Dmitriev's research carrier is devoted to experimental (x-ray diffraction and Raman spectroscopy) and theoretical (symmetry analysis and phenomenological theory) study of phase transitions in condense matter. He studied structural aspects of phase transitions in minerals, hydrogen-bonded crystals, oxides, metals and alloys. In collaboration with scientists from Institute of Crystallography (Moscow, Russia), Joint Institute for Nuclear Research (Dubna, Russia) and Institute of Physics (Prague, Czech Republic) the research on lattice dynamics and mechanisms of fast protonic transport (superprotonic conductivity) and structure of protonic glasses was carried out. Crystal chemistry of HT_c-oxydes, self-assembling/self-organized systems (complex fluids) was studied in collaboration with research groups from the Universities of Sao Paulo and Santa Catarina (Brazil), as well as from the University of Picardie (France). High-pressure study of metals, minerals and inorganic compounds is performed in collaboration with scientists from the Geoinstitute in Bayreuth (Germany), Uppsala University (Sweden), and APS (USA). The research in pressure induced amorphization, nanocrystallization, phase stability and electronic properties of nanocrystals is carried out in collaboration with scientists from the National Institute of Technology (INP Grenoble, France).

Research has been undertaken internationally in collaboration with the following eminent scientists. These undertakings have invariably led to joint publications.

Blaschko, Prof Oscar	(Vienna, Austria)
Boldyeva, Prof Elena	(Novosibirsk, Russia)
Dubrovinsky, Dr Leonid	(Bayreuth, Germany)
Figueiredo Neto, Prof Antonio	(Sao Paulo, Brazil)
Gufan, Prof Yuri	(Rostov-on-Don, Russia)
Krexner, Dr Gerhard	(Vienna, Austria)
Lorman, Prof Vladimir	(Montpellier, France)
Lucazeau, Prof Guy	(Grenoble, France)
McMillan, Prof Paul F	(London, UK)
Ouriques, Prof Gerson	(Florianopolis, Brazil)
Poniatovsky, Prof Eugenie	(Moscow, Russia)
Salje, Prof Ekhard	(Cambridge, UK)
Schwarzenbach, Prof Dieter	(Lausanne, Switzerland)
Shuvalov, Prof Lev	(Moscow, Russia)
Smutny, Dr Frantisek	(Prague, Czech Republic)
Toledano, Prof Pierre	(Amiens, France)
Timonin, Dr Pavel	(Rostov-on-Don, Russia)

RESEARCH FUNDING

The research of Prof Dmitriev was supported by the Ministry of High Education of Russia, Russian National Foundation for Fundamental Research, International Soros Foundation, European INTAS foundation, Swiss National Science Foundation (program SCOPES).

PUBLICATIONS

Research Publications:

Author or joint author of 2 books and about 120 scientific papers and reviews (see list of publications).

SCIENTIFIC LECTURES

Plenary Lectures [All by invitation]

- VII European Congress on Ferroelectrics (Dijon, France) 1991.
- 1st International Meeting on Ferroelastics (Voronej, Russia) 1991.
- 1st International Meeting on Superprotonic Conductors (Dubna, Russia) 1994.
- XVII Congress of the International Union of Crystallography (Seattle, Washington, USA) 1996.
- International School on Physics in Les Houches (Les Houches, France) 2002.
- International Aminoff Symposium (Stockholm, Sweden) 2005.
- High Pressure Crystallography, International Course (Erice, Italy) 2009.
- ECM25 (Istanbul, Turkey) 2009.
- ECM26 (Darmstadt, Germany) 2010.

Lectures

- University of Picardie (Amiens, France)
- Institute of Physics, Czech National Academy of Science (Prague, Czech Republic) 1996
- University of Sao Paulo (Sao Paulo, Brazil) 1997
- University of Santa Catarina (Florianopolis, Brazil) 1998
- University Jose Fourier (Grenoble, France) 2002
- University of Berne (Berne, Switzerland) 2004
- Southern Federal University (Rostov-on-Don, Russia) 2006
- Academy of Sciences and Arts of Slovenia (Ljubljana, Slovenia) 2007
- National Institute of Metrology (INMETRO) (Rio de Janeiro, Brazil) 2011

ACADEMIC RESPONSIBILITIES

Acted as external examiner, promoter, and co-promoter for masters and doctoral dissertations in Physics at the University of Rostov-on-Don (Russia); University of Picardie (Amiens, France); University of Minas Gerais (Belo Horizonte, Brazil); National Institute of Technology (Grenoble, France); University Jose Fourier (Grenoble, France); University of Lausanne (Switzerland).

Acted as referee for research proposals of the European Science Foundation; International Soros Foundation, Moscow, Russia; National Foundation for Fundamental Research, Moscow, Russia, and European INTAS foundation; Academy of Sciences of the Czech Republic; and European Science Foundation. Included in the Federal Register of Experts in Science and Technology (Russia). The member of the Swiss Light Source Proposal Review Committee.

Acted as referee for research papers in the APS journals (Physical Review Letters, Physical Review); European Physical Journal, Europhysics Letters, Journal of Physics and Chemistry of Solids, Journal of Physics: Condense Matter, Acta Crystallographica, Physica Status Solidi, Nano Letters.

MEMBERSHIP OF THE FOLLOWING PROFESSIONAL SOCIETIES

Swiss Society for Crystallography
Swiss Physical Society

MARITAL STATUS

Married to Dr Olga Bandilet (PhD in Geophysics). One son was born of the marriage. The son, Alexander (PhD in Physics, EPFL, Switzerland) is specializing in study of nanostructures for biosensors and biochips at Chalmers University of Technology, Göteborg, Sweden.

SELECTED PUBLICATIONS

Times Cited: 1,370; h-index : 19

Books and book chapters:

1. Toledano P., Dmitriev V. *Reconstructive Phase Transitions in Crystals and Quasicrystals*. World Scientific, Singapore, 1996; 392 p.
2. Gufan Yu., Dmitriev V., Rochal S., Snezhkov V. *Landau Phases in Close Packed Structures*. Rostov Univ. Publishing, Rostov on the Don, 1990, 256 p.
3. Toledano P., Dmitriev V. Theory of reconstructive phase transitions in crystals of the elements and related structures. In "Key Engineering Materials. V.101-102. Diffusionless Phase Transitions in Oxides and some Reconstructive and Martensitic Phase Transitions". Ed.C.Boulesteix. Trans Tech Publ., Switzerland, 1995; p.311.
4. Dmitriev V. Introduction into the Theory of Phase Transitions. In "High-Pressure Crystallography. From fundamental phenomena to technological applications". Eds. E.Boldireva and P.Dera. Springer, The Netherlands, 2010; p.171.
5. Filinchuk Y., Chernyshov D., Dmitriev V. Crystal Chemistry of Light Botohydrides. In "Boron Hydrides High Potential Hydrogen Storage Material". Eds. U.B.Demirci and P.Miele. Nova Science Pubs., USA, 2010; Ch.6.

Review papers:

1. Filinchuk Y., Chernyshov D., Dmitriev V. Light metal borohydrides: crystal structures and beyond. *Z. Kristallogr.*, 2008, **223**, 649.
2. Toledano P., Dmitriev V. New approach to the phenomenological study of reconstructive transformations in crystalline and quasicrystalline state. *Condense Matter News*, 1993, **2**, p.9.
3. Dmitriev V., Toledano P. Crystal geometry and phenomenological models of reconstructive phase transitions. *Phase Transitions*, 1993, **49**, p.57.
4. Dmitriev V. Crystallography and order parameters for the phenomenological theory of reconstructive transitions. *Proc.Acad.Scién.USSR (Izvestia AN SSSR)*. Physics. 1989, **53**, p.1254.

Papers:

1. Svitlyk V., Chernyshov D., Pomjakushina E., Krzton-Maziopa A., Conder K., Pomjakushin V., Dmitriev V. Temperature and pressure evolution of the structure of $A_x(\text{Fe}_{1-y}\text{Se})_2$ (A=Cs, Rb, K) studied by synchrotron powder diffraction. *Inorg. Chem.*, 2011, **50**, 10703.
2. Dyadkin V. A., Grigoriev, S. V., Menzel D., Chernyshov D., Dmitriev V. et al. Control of chirality of transition-metal monosilicides by the Czochralski method *Phys. Rev. B*, 2011, **84**, 014435.
3. Leontyev I., Yuzyuk Yu., Janolin P.-E., El-Marssi M., Chernyshov D., Dmitriev V. et al. Orthorhombic polar Nd-doped BiFeO_3 thin film on MgO substrate. *J.Phys.: Condens. Matter*, 2011, **23**, 332201.
4. Andersson O., Filinchuk Y., Dmitriev V. et al. Phase coexistence and hysteresis effects in the pressure-temperature phase diagram of NH_3BH_3 . *Phys. Rev. B*, 2011, **84**, 024115.
5. Quesada Cabrera R., Meersman F., McMillan P., Dmitriev V. Nanomechanical and structural properties of native cellulose under compressive stress. *Biomacromolecules*, 2011, **12**, 2178.
6. Arletti R., Vezzalini G., Morsli A., Di Remzo F., Dmitriev V., Quartieri S. Elastic behavior of MFI-type zeolites: 1-Compressibility of Na-ZSM-5 in penetrating and non-penetrating media. *Microporous and Mesoporous Materials*, 2011, **142**, 696.
7. Talyzin A., Luzan S.M., Szabo T., Chernyshev D., Dmitriev V. Temperature dependent structural breathing of hydrated graphite oxide in H_2O . *Carbon*, 2011, **49**, 1894.
8. Narigina O., Dubrovinsky L., Miyajima N., McCammon C.A., Frost D.J., Kantor I., Mezouar M., Prakashenka V., Dubrovinskaia N., Dmitriev V. Phase relations in Fe-Ni-C system at high pressures and temperatures. *Phys. Chem. Minerals*, 2011, **38**, 203.
9. Meersman F., Quesada Cabrera R., McMillan P., Dmitriev V. Structural and Mechanical Properties of TTR105-115 Amyloid Fibrils from Compression Experiments. *Biophysical Journal*, 2011, **100**, 193.
10. Talyzin A., Sundquist B., Szabo T., Dmitriev V. Structural breathing of graphite oxide pressurized in basic and acidic solutions. *J. Phys. Chem. Lett.*, 2011, **2**, 309.

11. Zarechnaya E., Dubrovinskaia N., Caracas R., Merlini M., Hanfland M., Filinchuk Y., Chernyshov D., Dmitriev V., Dubrovinsky L. Pressure-induced isostructural phase transformation in γ -B₂₈. *Phys. Rev. B*, 2010, **82**, 184111.
12. Papoular R.J., Le Parc R., Dmitriev V., et al. First Observation of the FCC to Trigonal/Rhombohedral Transition of Pure Dimerized C₆₀ Under High Pressure. *Fullerens, Nanotubes and Carbon Nanostructures*, 2010, **18**, 386.
13. Papoular R.J., Dmitriev V., Davydov V.A., et al. Study of the Orthorhombic Polymeric Phase of C-60 Under High Pressure Using Synchrotron X-Ray Powder Diffraction. *Fullerens, Nanotubes and Carbon Nanostructures*, 2010, **18**, 392.
14. Machon D., Pinheiro C.B., Bouvier P., Dmitriev V.P., and Crichton W.A. Absence of pressure-induced amorphization in LiKSO₄. *J.Phys.: Condens. Matter*, 2010, **22**, 315401.
15. Filinchuk Y., Talyzin A.V., Hagemann H., Dmitriev V., Chernyshov D., Sundquist B. Cation Size and Anion Anisotropy in Structural Chemistry of Metal Borohydrides. The Peculiar Pressure Evolution of RbBH₄. *Inorg. Chem.*, 2010, **49**, 5285.
16. Grigoriev S.V., Chernyshov D., Dyadkin V.A., Dmitriev V., Moskvina E.V., Menzel D., Lamago D., Wolf Th., Menzel D., Schoenes J., Maleyev S.V., Eckerlebe H. Interplay between crystalline chirality and magnetic structure in Mn_{1-x}Fe_xSi. *Phys. Rev. B*, 2010, **81**, 012408.
17. Talyzin A., Sundquist B., Szabo T., ...Dmitriev V. Pressure-induced insertion of liquid alcohols into graphite oxide structure. *J. of Amer Chem. Soc.*, 2009, **131**, 18445.
18. Chernyshov D., Rozenberg G., Greenberg E., Pomyakushina E., Dmitriev V. Pressure-induced insulator-to-metal transition in TbBaCo₂O_{5.48}. *Phys. Rev. Letters*, 2009, **103**, 125501.
19. Filinchuk Y., Nevidomskyy A., Chernyshov D., Dmitriev V. High-pressure phase and transition phenomena in ammonia borane from X-ray diffraction, Landau theory, and *ab initio* calculations. *Phys. Rev. B*, 2009, **79**, 214111.
20. Zarechnaya E., Dubrovinsky L., Dubrovinskaia N., Filinchuk Y., Chernyshov D., Dmitriev V., Miyajima N., et al. Superhard semiconducting optically transparent high pressure phase of boron. *Phys. Rev. Letters.*, 2009, **102**, 185501.
21. Grigoriev S.V., Chernyshov D., Dyadkin V.A., Dmitriev V., Maleyev S.V., Moskvina E.V., Menzel D., Schoenes J., Eckerlebe H. Crystal handedness and spin helix chirality in Fe_{1-x}Co_xSi. *Phys. Rev. Letters.*, 2009, **102**, 037204.
22. Meersman F., Quesada Cabrera R., McMillan P., Dmitriev V. Compressibility of insulin amyloid fibrils determined by X-ray diffraction in a diamond anvil cell. *High Pressure Research*, 2009, **29**, 665.
23. Zarechnaya E., Dubrovinsky L., Dubrovinskaia N., Miyajima N., Filinchuk Y., Chernyshov D., Dmitriev V. Synthesis of an orthorhombic high pressure boron phase. *Sci. Technol. Adv. Matter*, 2008, **9**, 044209.
24. Chernyshov D., Bosak A., Dmitriev V., Filinchuk Y., Hagemann H. Low-lying phonons in NaBH₄ as seen with inelastic scattering of synchrotron radiation. *Phys. Rev. B*, 2008, **78**, 172104.
25. Talyzin A., Solozhenko V., Kurakevych O., Szabo T., Dekany I., Kurnosov A., Dmitriev V. Colossal pressure-induced lattice expansion of graphite oxide in the presence of water. *Angew. Chem. Int. Ed.*, 2008, **47**, 8268.
26. Fois E., Gamba A., Medici C., Tabacchi G., Quartieri S., Mazzucato E., Arletti R., Vezzalini G., Dmitriev V. High pressure deformation mechanism of Li-ABW: Synchrotron XRPD study and *ab initio* molecular dynamics simulations. *Microporous and Mesoporous Materials*, 2008, **115**, 267.
27. Boldyreva E.V., Sowa H., Ahsbahs H., Goryainov S., Chernyshev V., Dmitriev V., Seryotkin Y., Kolesnik E., Shakhshneider T., Ivashevskaya S., and Drebuschak T. Pressure-induced phase transitions in organic molecular crystals: a combination of X-ray single-crystal and powder diffraction, Raman and IR-spectroscopy. *J. of Physics: Conf. Series*, 2008, **121**, 022023.
28. Ori S., Quartieri S., Vezzalini G., Dmitriev V. Pressure-induced over-hydration and water ordering in gismondine: a synchrotron powder diffraction study. *American Mineralogist*, 2008, **93**, 1393.
29. Dmitriev V., Filinchuk Y., Chernyshov D., Talyzin A.V., Dzwilewski A., Andersson O., Sundqvist B., Kurnosov A. Pressure-temperature phase diagram of LiBH₄: Synchrotron XRD experiments and theoretical analysis. *Phys.Rev.B*, 2008, **77**, 174112.
30. Rouquette J., Kantor I., McCammon C.A., Dmitriev V., Dubrovinsky L. High-pressure studies of (Mg_{0.9}Fe_{0.1})₂SiO₄ olivine using Raman spectroscopy, X-ray diffraction and Mossbauer spectroscopy. *Inorg. Chem.*, 2008, **47**, 2668.
31. Ori S., Quartieri S., Vezzalini G., Dmitriev V. Pressure-induced deformation and elastic behavior of wairakite. *American Mineralogist*, 2008, **93**, 53.
32. Filinchuk Y., Chernyshov D., Nevidomskyy A., Dmitriev V. High-pressure polymorphism as a step towards destabilization of LiBH₄. *Angew. Chem. Int. Ed.*, 2008, **47**, 529.
33. Kuznetsov A., Dmitriev V., Volkova Y., Kurnosov A., Dubrovinskaia N., Dubrovinsky L. *In-situ* combined X-ray diffraction and electrical resistance measurements at high pressures and temperatures in diamond anvil cells. *High Pressure Research*, 2007, **27**, 213.

34. Kantor A.P., Kantor I.Yu., Kurnosov A.V., ... Dmitriev V.P., et al. Sound wave velocities of fcc Fe-Ni alloy at high pressure and temperature by mean of inelastic X-ray scattering. *Phys. Earth Planet. Interiors*, 2007, **164**, 83.
35. Filinchuk Y., Talyzin A.V., Chernyshov D., Dmitriev V. High-pressure phase of NaBH₄: Crystal structure from synchrotron powder diffraction data. *Phys. Rev. B*, 2007, **76**, 092104.
36. Dubrovinskaia N., Solozhenko V.L., Miyajima N., Dmitriev V., Kurakevych O.O., Dubrovinsky L. Superhard nanocomposite of dense polymorphs of boron nitride: Noncarbon material has reached diamond hardness. *Appl. Phys. Letters*, 2007, **90**, 101912.
37. Betti C., Fois E., Mazzucato E., Medici C., Quartieri S., Tabacchi G., Vezzalini G., Dmitriev V. Gismondine under HP: Deformation mechanism and re-organization of the extra-framework species. *Microporous and Mesoporous Materials*, 2007, **103**, 190.
38. Dmitriev V.P., Chernyshov D., Filinchuk Y.E., Degtyareva V.F. Anti-isostructural phases and anomalous thermoelasticity in In-based alloys: Synchrotron x-ray diffraction experiments and unified phenomenological model. *Phys. Rev. B*, 2007, **75**, 024111.
39. Boldyreva E.V., Sowa H., Seryotkin Yu.V., Drebuschak T.N., Ahsbans H., Chernyshev V., Dmitriev V. Pressure-induced phase transitions in crystalline L-serine studied by single-crystal and high-resolution powder X-ray diffraction. *Chem.Phys.Letts.*, 2006, **429**, 474.
40. Kuznetsov A., Pereira A., Shiryaev A., Haines J., Dubrovinsky L., Dmitriev V., Pattison P., Guignot N. Pressure-Induced Chemical Decomposition and Structural Changes of Boric Acid. *J.Phys.Chem. B*, 2006, **110**, 13858.
41. Kantor A.P., Kantor I.Yu., Dubrovinsky L.S., Krisch M. Bossak A., Dmitriev V.P., Urusov V.S. Measuring speed of sound in Iron-Nickel alloy at high pressure by inelastic x-ray scattering. *Doklady Physics*, 2006, **51**, 584.
42. Boldyreva E.V., Dmitriev V., Hancock B.C. Effect of pressure up to 5.5 GPa on dry powder samples of chlorpropamide form-A. *Int. J. of Pharmaceutics*, 2006, **327**, 51.
43. Swamy V., Manzies D., Muddle B., Kuznetsov A., Dubrovinsky L., Dai Q., Dmitriev V. Nonlinear size dependence of anatase TiO₂ lattice parameters. *Appl.Phys.Letters*, 2006, **88**, 243103.
44. Dmitriev V., Dubrovinsky L., Le Bihan T., Kuznetsov A., Weber H.-P., Poniatovsky E. Collapsed hexagonal ω-phase in a compressed TiZr Alloy. *Phys.Rev.B*, 2006, **73**, 094114.
45. Dubrovinskaia N., Dubrovinsky L., Kantor I., Crichton W.A., Dmitriev V., Prakapenka V., Shen G., Vitos L., Ahuja R., Johansson B., Abrikosov I.A. Beating the miscibility barrier between iron group elements and magnesium by high-pressure alloying. *Physical Review Letters*, 2005, **95**, 245502.
46. Grzechnik A., Dmitriev V., Weber H.-P. Dilithium zirconium hexafluoride Li₂ZrF₆ at high pressures: A new monoclinic phase. *J. Phys. Chem. Solids*, 2005, **66**, 1769.
47. Swamy V., Dubrovinsky L., Dubrovinskaia N., Langenhorst F., Simionovici A., Drakopolulos M., Dmitriev V., Weber H.-P. Size effect on the structure and phase transition behavior of Baddeleyite TiO₂. *Solid State Comm.*, 2005, **134**, 541.
48. Grzechnik A., Friese K., Dmitriev V., Weber H.-P., Gesland J.-Y., Crichton W. Pressure-induced tricritical phase transition from the scheelite structure to the fergusonite structure in LiLuF₄. *J.Phys.: Condens.Matter*, 2005, **17**, 763.
49. Dmitriev V., Kuznetsov A., Bandilet O., Bouvier P., Dubrovinsky L., Machon D., and Weber H.-P. Stability of the high-pressure monoclinic phase in Ce and Pr metals: comparative diffraction study and phenomenological theory. *Phys.Rev.B*, 2004, **70**, 014104.
50. Machon D., Dmitriev V., Sinitsyn V., and Lucazeau G. Eu₂(MoO₄)₃ single crystal at high pressure: Structural phase transitions and amorphization probed by fluorescence spectroscopy. *Phys.Rev.B*, 2004, **70**, 094117.
51. Grzechnik A., Crichton W., Bouvier P., Dmitriev V., Weber H.-P., Gesland J.-Y., Decomposition of LiGdF₄ scheelite at high pressure. *J.Phys.: Condens.Matter*, 2004, **16**, 7779.
52. Dubrovinsky L., Dubrovinskaia N., Prakapenka V., Seifert F., Langenhorst F., Dmitriev V., Weber H.-P., Le Bihan T. A class of new high-pressure silica polymorphs. *Phys. Earth and Planet. Interiors*, 2004, **143-144**, 231.
53. Grzechnik A., Dmitriev V., Weber H.-P., Gesland J.-Y., Friese K. Anisotropic thermal expansion in LiCaAlF₆ and LiSrAlF₆. *J.Phys.: Condens.Matter*, 2004, **16**, 5769.
54. Grzechnik A., Dmitriev V., Weber H.-P., Gesland J.-I., van Smaalen S. LiSrAlF₆ with the LiBaCrF₆-type structure. *J.Phys.: Condens.Matter*, 2004, **16**, 3005.
55. Grzechnik A., Dmitriev V., Weber H.-P., Gesland J.-I., van Smaalen S. The crystal structures of pressure-induced LiSrAlF₆-II and LiCaAlF₆-II. *J.Phys.: Condens.Matter*, 2004, **16**, 1033.
56. Hostettler M., Schwarzenbach D., Helbing J., Dmitriev V., Weber H.P. Structure and SHG of the high pressure phase IV HgBr₂. *Solid State Comm.*, 2004, **129**, 359.
57. Sinitsyn V.V., Dmitriev V.P., Bdikin I.K., Machon D., Dubrovinsky L., Ponyatowsky E.G. , Weber H.P. Amorphization of cuprite, Cu₂O, due to chemical decomposition under high pressure. *JETP Letters*, 2004, **80**, 704.

58. Machon D., Sinitsin V., Dmitriev V., Bdkin I., Dubrovinsky L. Structural transitions in Cu₂O at pressures up to 11 GPa. *J.Phys.: Condens.Matter*, 2003, **15**, 7227.
59. Dubrovinsky L., Dubrovinskaia N., McCammon C.,...Dmitriev V., Weber H.P., Le Bihan T., Johansson B. Structure of metallic high-pressure Fe₃O₄ polymorph: Experimental and theoretical study. *J.Phys.: Condens.Matter*, 2003, **15**, 7697.
60. Machon D., Dmitriev V., Bouvier P., Timonin P., Shirokov V., Weber H.P. Pseudoamorphization of Cs₂HgBr₄. *Phys.Rev.B*, 2003, **68**, 144104.
61. Bouvier P., Dmitriev V., Lucazeau G. The high-pressure phase sequence in nanocrystalline zirconia. *EPJ B*, 2003, **35**, 301.
62. Dubrovinsky L., Dubrovinskaia N., Prakapenka V., Seifert F., Langenhorst F., Dmitriev V. High-pressure and high-temperature polymorphism in silica. *High Pressure Res.*, 2003, **23**, 35.
63. Kuznetsov A., Dmitriev V., Bandilet O., Weber H.P. High-temperature fcc phase of Pr: negative thermal expansion and intermediate valence state. *Phys.Rev.B*, 2003, **68**, 064109.
64. Dubrovinsky L., Dubrovinskaia N., Langenhorst F., Dobson D., Rubie D., Gesmann C., Abrikosov I., Johansson B., Baykov V., Vitos L., Le Bihan T., Crichton W., Dmitriev V., Weber H.P. Iron-silica interaction at extreme conditions and electrically conducting layer at the base of Earth's mantle. *Nature*, 2003, **422**, 58.
65. Prakapenka V., Dubrovinsky L., Shen G., Rivers M., Sutton S., Dmitriev V., Weber H.P., LeBihan T. α -PbO₂-type high-pressure polymorph of GeO₂. *Phys.Rev.B*, 2003, **67**, 132101.
66. Dmitriev V., Kuznetsov A., Machon D., Weber H.P., Toledano P. Phase transition mechanisms in lanthanide elemental crystals. *Europhys. Letters*, 2003, **61**, 783.
67. Swamy V., Dubrovinsky L., Dubrovinskaia N., Simonovici A., Dracopoulos M., Dmitriev V., Weber H.P. Compression behavior of nanocrystalline anatase TiO₂. *Solid State Comm.*, 2003, **125**, 111.
68. Dmitriev V., Sinitsin V., Dilanian R., Machon D., Kuznetsov A., Poniatovsky E., Lucazeau G. and Weber H.P. In situ pressure-induced solid state amorphization in SMO, EMO and GMO crystals: chemical decomposition scenario. *J. Phys. Chem. Solids*, 2002, **64**, 307.
69. Kuznetsov A., Dmitriev V., Dubrovinsky L., Prakapenka V. and Weber H.P. FCC-HCP phase boundary in lead. *Solid State Comm.*, 2002, **122**, 125.
70. Toledano P., Krexner G., Prem M., Weber H.P., Dmitriev V. Theory of martensitic transformation in cobalt. *Phys.Rev.B*, 2001, **64**, 144104.
71. Dubrovinskaia N., Dubrovinsky L., Ahuja R., Prokopenko V., Dmitriev V. et al. Experimental and theoretical identification of a new high-pressure TiO₂ polymorph. *Phys.Rev. Lett.*, 2001, **87**, 275501.
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