

Curriculum Vitae

of George Tzvetkov

Personal information

Full Name: George Tzvetanov Tzvetkov

Place of Birth: Sofia, Bulgaria

Nationality: Bulgarian

Official address: Sofia 1164, J. Bouchier 1,

Faculty of Chemistry and Pharmacy,

Department of Inorganic Chemistry

University of Sofia

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Languages: Bulgarian (mother tongue), English (fluent),

Russian (fairly), German (basic knowledge)

University education and degrees

1992-1997: M.Sc. in Inorganic Chemistry, Department of Inorganic Chemistry,

University of Sofia;

1997-2000: Ph.D. thesis in Inorganic Chemistry: "Mechanochemical Effects in $\text{La}_2\text{O}_3\text{-SiO}_2$ and

$\text{Y}_2\text{O}_3\text{-SiO}_2$ Systems", Department of Inorganic Chemistry, University of Sofia

2017: D.Sc. thesis in Inorganic Chemistry: "Photoemission and X-ray absorption spectroscopy and microscopy studies of ultrathin molecular films and polymer microcontainers"

Professional positions and experience

2000-2001: Research fellow, Laboratory of Electron Spectroscopy, Bulgarian Academy of Sciences

2001-2005: Postdoctoral fellow at the Institut für Experimentalphysik,

Karl-Franzens Universität Graz, Austria (Prof. Falko Netzer);

FWF project „Interactions of amino acids and ice on oxide surfaces: a surface science approach “;

Short-term visiting researcher at BESSY II (Berlin, Germany) synchrotron radiation laboratory;

2005-2009: Postdoctoral fellow at the Physikalische Chemie II,

Universität Erlangen-Nürnberg, Germany (Prof. Rainer Fink);

Project „PolLux: a new scanning-transmission X-ray

Microscope (STXM) at Swiss Light Source (SLS)“;

Visiting researcher at BESSY II (Berlin, Germany) and at ESR (Grenoble, France) synchrotron radiation laboratories

Since spring 2006 permanent stay at SLS;

2009- Habilitation in Inorganic Chemistry;

2012- Head of the Department of Inorganic Chemistry.

Research Interests

Surface and interface science; Adsorption; Surface science techniques (NEXAFS, XPS, UPS, AES, LEED, TPD); X-ray microspectroscopy; Solid-state chemistry; Synthesis and characterization of advanced functional materials; Mechanochemistry

Publications

Articles in refereed journals and proceedings: >60; Book chapters: 1; Citations: ca. 870 (h: 15)

List of Publications of George Tzvetkov

№	Authors	Title	Journal
1	Tzvetkov, G. , Tsvetkov, M., Spassov, T.	Ammonia-evaporation-induced construction of three-dimensional NiO/g-C ₃ N ₄ composite with enhanced adsorption and visible light-driven photocatalytic performance	Superlattices and Microstructures 119 (2018) 122-133
2	Tzvetkov, G. , Spassov, T., Kaneva, N., Tsyntsarski, B.	Mesoporous cellular-structured carbons derived from glucose-fructose syrup and their adsorption properties towards acetaminophen	Functional Materials Letters 10 (2017) 1750080
3	Tzvetkov, G. , Kaneva, N., Spassov, T.	Low-temperature preparation of ZnO-coated pollens and their photocatalytic performance under UV-light	Comptes rendus de l'Académie bulgare des Sciences 70 (2017) 785-794
4	Nedyalkova, M., Donkova, B., Romanova, J., Tzvetkov, G. , Madurga, S., Simeonov, V.	Iron oxide nanoparticles – In vivo/in vitro biomedical applications and in silico studies	Advances in Colloid and Interface Science 249 (2017) 192-212
5	Tzvetkov, G. , Kaneva, N., Spassov, T.	Room-temperature fabrication of core-shell nano-ZnO/pollen grain biocomposite for adsorptive removal of organic dye from water	Applied Surface Science 400 (2017) 481-491
6	Späth, A., Graf-Zeiler, B., Paradossi, G., Gughare S., Tzvetkov, G. , Fink, R.H.	Quantitative x-ray microscopic analysis of individual thermoresponsive microgel particles in aqueous solution	RSC Advances 6 (2016) 98228-98233
7	Tzvetkov, G. , Tsyntsarski, B., Balashev, K., Spassov, T.	Microstructural investigations of carbon foams derived from modified coal-tar pitch	Micron 89 (2016) 34-42
8	Tzvetkov, G. , Mihaylova, S., Stoitchkova, K., Tzvetkov, P., Spassov, T.	Mechanochemical and chemical activation of lignocellulosic material to prepare powdered activated carbons for adsorption applications	Powder Technology 299 (2016) 41-50
9	Tzvetkov, G. , Spaeth, A., Fink, R.H.	Soft X-ray induced damage in PVA-based membranes in water environment monitored by X-ray absorption spectroscopy	Radiation Physics and Chemistry 103 (2014) 84-88

10	Tzvetkov, G. , Netzer, F.P.	Thickness-Dependent Effects in H ₂ O Desorption from Glycine/Amorphous Solid Water Films	Chemical Physics Letters 588 (2013) 109-113
11	Tzvetkov, G. , Netzer, F.P.	Interactions of Phenylglycine with Amorphous Solid Water Studied by Temperature-programmed Desorption and Photoelectron Spectroscopy	Surface Science 613 (2013) 95-101
12	Tzvetkov, G. , Koller, G., Netzer, F.P.	Interactions between glycine and amorphous solid water nanoscale films	Surface Science 606 (2012) 1879-1885
13	Graf-Zeiler, B., Fink, R.H., Tzvetkov, G.	In-situ synchrotron radiation X-ray microspectroscopy of polymer microcontainers	ChemPhysChem 12 (2011) 3503-3509
14	Tzvetkov, G. , Netzer, F.P.	Synchrotron X-ray Photoemission Study of Soft X-ray Processed Ultrathin Glycine-Water Ice Films	Journal of Chemical Physics 134 (2011) 1-8
15	Zelenay, V., Ammann, M., Křepelová, A., Birrer, M., Tzvetkov, G. , Vernooij, M.G.C., Raabe, J., Huthwelker, T.	Direct observation of water uptake and release in individual submicrometer sized ammonium sulfate and ammonium sulfate/adipic acid particles using x-ray microspectroscopy	Journal of Aerosol Science 42 (2011) 38-51
16	Huthwelker, T., Birrer, M., Zelenay, V., Krepelova, A., Raabe, J., Tzvetkov, G. , Heuberger-Vernooij, M.G.C., Ammann, M.	An in situ cell to study phase transitions in individual aerosol particles on a substrate using scanning transmission X-ray spectro-microscopy	Review of Scientific Instruments 81 (2010) 113706-1-113706-9
17	Tzvetkov, G. , Netzer, F.P.	X-ray induced irradiation effects in glycine thin films: a time-dependent XPS and TPD study	Journal of Electron Spectroscopy and Related Phenomena 182 (2010) 41-46
18	Hub, C., Burkhardt, M., Halik, M., Tzvetkov, G. , Fink, R.	In-situ STXM investigations of pentacene-based OFETs during operation	J. Mater. Chem. 20 (2010) 4884-4887
19	Bernard, S., Beyssac, O., Benzerara, K., Findling, N., Tzvetkov, G. , Brown Jr., G.E.	XANES, Raman and XRD study of anthracene-based cokes and saccharosebased chars submitted to high temperature pyrolysis	Carbon 9 (2010) 2506-2516

20	Tzvetkov, G. , Paradossi, G., Tortora, M., Fernandes, P., Fery, A., B. Graf-Zeiler, B., Fink, R.H.	Water-dispersible PVA-based dry microballoons with potential for biomedical applications	Materials Science and Engineering C 30 (2010) 412-416
21	Fernandez, P., Pretzl, M., Fery, A., Tzvetkov, G. , Fink, R.H.	Novel Characterization Techniques of Microballoons	In book: Ultrasound contrast agents. Targeting and processing methods for theranostics, Publisher: Springer-Verlag, 2010, Editors: Paradossi, G. and Pellegretti, P. and Trucco, A
22	Vila-Comamala, J., Jefimovs, K., Pilvi, T., Ritala, M., Sarkar, S.S., Solak, H.H., Guzenko, V.A., Stampanoni, M., Marone, F., Raabe, J., Tzvetkov, G. , Fink, R.H., Grolimund, D., Borca, C.N., Kaulich, B., David, C.	Advanced X-ray diffractive optics	Journal of Physics: Conference Series 186 (2009) 012078
23	Raabe, J., Watts, B., Tzvetkov, G. , Fink, R.H., Quitmann, C.	First differential phase contrast results from PolLux	Journal of Physics: Conference Series 186 (2009) 012012
24	Vernooij, M.G.C., Mohr, M., Tzvetkov, G. , Zelenay, V., Huthwelker, T., Kaegi R., Gehrig, R., Grob�ty, B.	On source identification and alteration of single diesel and wood smoke soot particles in the atmosphere; an x-ray microspectroscopy study	Environmental Science and Technology 43 (2009) 5339–5344
25	Fink, R., Hub, C., Tzvetkov, G.	Zone-plate based nanospectroscopy with soft x-rays at the SLS	Acta Physica Polonica A 115 (2009) 462-466
26	Tzvetkov, G. , Fernandes, P., Wenzel, S., Fery, A., Paradossi, G., Fink, R.H.	Soft X-ray induced modifications of PVA-based microbubbles in aqueous environment: a microspectroscopy study	Physical Chemistry Chemical Physics 11 (2009) 1098–1104
27	Jia, Ch.-J., Sun, L.-D., Luo, F., Heyderman, L.J., Yan, Zh.-G., Yan, Ch.-H., Zheng, K., Han, X.-D., Zhang, Z., Takano, M., Hayashi, N., Eltschka, M., Kl�ui, M., R�diger, U., Kasama, T., Cervera-Gontard, L., Dunin-Borkowski, R.E., Tzvetkov, G. , Raabe, J.	Large scale synthesis of single crystal iron oxide magnetic nanorings	Journal of the American Chemical Society 130 (2008) 16968–16977
28	Fernandes, P., Tzvetkov, G. , Fink, R.H., Paradossi, G., Fery, A.	Quantitative analysis of scanning transmission X-ray microscopy images of gas-filled PVA based microballoons	Langmuir 24 (2008) 13677-13682
29	Raabe, J., Tzvetkov, G. , Flechsig, U., B�ge, M., Jaggi, A., Sarafimov, B., Quitmann, C., Vernooij, M.G.C.,	PolLux: A new instrument for soft X-ray spectromicroscopy at the SLS	Review of Scientific Instruments 79 (2008) 113704

	Huthwelker, T., Ade, H., Kilcoyne, D., Tyliczszak, T., Fink, R.		
30	Tzvetkov, G. , Fink, R.H.	Temperature dependent X-ray microspectroscopy of phase-change core-shell microcapsules	Scripta Materialia 59 (2008) 348-351
31	Kaegi, R., Wagner, T., Hetzer, B., Sinnet, B., Tzvetkov, G. , Boller, M.	Properties of nanosized particles in drinking water determined by analytical microscopy and LIBD	Water Research 42 (2008) 2778-2786
32	Tzvetkov, G. , Graf, B., Fernandes, P., Fery, A., Cavalieri, F., Paradossi, G., Fink, R.H.	In situ characterization of gas-filled microballoons using soft X-ray microspectroscopy	Soft Matter 4 (2008) 510-514
33	Tzvetkov, G. , Graf, B., Wiegner, R., Raabe, J., Quitmann, C., Fink, R.	Soft X-ray spectromicroscopy of phase-change microcapsules	Micron 39 (2008) 275-279
34	Tzvetkov, G. , Schmidt, N., Strunskus, T., Wöll, Ch., Fink, R.	Molecular adsorption and growth of naphthalene films on Ag(100)	Surface Science 601 (2007) 2089-2094
35	Schoiswohl, J., Tzvetkov, G. , Pfuner, F., Ramsey, M.G., S. Surnev, S., Netzer, F.P.	Reactivity of V ₂ O ₃ (0001) surfaces: molecular vs dissociative adsorption of water	Physical Chemistry Chemical Physics 8 (2006) 1614-1623
36	Zubavichus, Y., Zharnikov, M., Yang, Y., Fuchs, O., Heske, C., Umbach, E., Tzvetkov, G. , Netzer, F.P., Grunze, M.	Surface Chemistry of ultrathin films of histidine on gold as probed by high-resolution synchrotron photoemission	Journal of Physical Chemistry B 109 (2005) 884-891
37	Tzvetkov, G. , Ramsey, M.G., Netzer, F.P.	Glycine-ice nanolayers: morphology and surface energetics	Journal of Chemical Physics 122 (2005) 114712-114719
38	Zubavichus, Y., Yang, Y., Zharnikov, M., Fuchs, O., Schmidt, Th., Heske, C., Umbach, E., Tzvetkov, G. , Netzer, F.P., Grunze, M.	Local structure of amorphous ice as revealed by O K-edge EXAFS	ChemPhysChem 5 (2004) 509-514
39	Tzvetkov, G. , Koller, G., Zubavichus, Y., Casu, M.B. Fuchs, O., Heske, C., Umbach, E., Grunze, M., Ramsey, M.G., Netzer, F.P.	Bonding and structure of glycine on ordered Al ₂ O ₃ thin films	Langmuir 20 (2004) 10551-10559
40	Koller, G., Berkebile, S., Krenn, J., Tzvetkov, G. , Hlawacek, G., Lengyel, O., Netzer, F.P., Ramsey, M.G., Teichert, C., Resel, R.	Oriented sexiphenyl single crystal nanoneedles on TiO ₂ (110)	Advanced Materials 16 (2004) 2159-2162

41	Tzvetkov, G. , Ramsey, M.G., Netzer, F.P.	Interaction of glycine with ice nanolayers	Chemical Physics Letters 397 (2004) 392-396
42	Tzvetkov, G. , Zubavichus, Y., Koller, G., Schmidt, Th., Heske, C., Umbach, E., Grunze, M., Ramsey, M.G., Netzer, F.P.	Growth of H ₂ O layers on an ultra-thin Al ₂ O ₃ film: from monomeric species to ice	Surface Science 543 (2003) 131-140
43	Tzvetkov, G. , Ramsey, M.G., Netzer, F.P.	Adsorption of glycine on a NiAl(110) alloy surface	Surface Science 526 (2003) 383-393
44	Todorovska, R., St. Groudeva-Zotova, St., Todorovsky, D., Tzvetkov, G. , Stefanov, P.	Highly crystalline Y ₃ Fe ₅ O ₁₂ thin films by citric spray pyrolysis	Journal of Materials Synthesis and Processing 10 (2002) 283-288
45	Hadjiivanov, K., Avreyska, V., Tzvetkov, G. , Stefanov, P., Chupin, C., Mirodatos, C., Marinova, Ts.	Selective catalytic reduction of NO _x by methane over Co/ZrO ₂ catalysts	Surface and Interface Analysis 32 (2001) 175-178
46	Tzvetkov, G. , Minkova, N.	Influence of mechanochemical activation effect on the Y ₂ Si ₂ O ₇ formation	Journal of Materials Science Letters 20 (2001) 1273-1275
47	Tzvetkov, G. , Minkova, N.	Effects of mechanochemical treatment on yttrium oxyapatite formation	Journal of Materials Synthesis and Processing 9 (2001) 125-130
48	Todorovsky, D., Minkova, N., Milanova, M., Terziev, A., Tzvetkov, G. , Getzova, M.	Rare Earth Chemistry and Technology: Scientific, Technological and Production Activities at the Department of Inorganic Chemistry of the Sofia University	Sci. Papers of the Plovdiv Univ. 30 (2001) 3-10
49	Todorovsky, D., Minkova, N., Milanova, M., Terziev, A., Tzvetkov, G.	Rare Earths Separation- the Mechanochemical Route	In: Proc. Int. Conf. "Tribology 2001", 25-26. 10, 2001, Sofia, ed. by E. Assenova, A. Yankov. Tribology Centre, Sofia, 2001, pp. 116-119
50	Tzvetkov, G. , Minkova, N.	Mechanochemically induced formation of La ₂ SiO ₅	Journal of Materials Science 35 (2000) 2435-2441
51	Tzvetkov, G. , Minkova, N.	Mechanochemical Effects in Some Rare-Earths Systems	В: Научно-технологична сесия Контакт'99, София, 1999, стр. 215-223
52	Tzvetkov, G. , Minkova, N.	Application of mechanochemical treatment to the synthesis of A- and G-forms of La ₂ Si ₂ O ₇	Solid State Ionics 116 (1999) 241-248
53	Tzvetkov, G. , Minkova, N.	Mechanochemical Effects on the Precursor Formation of Y ₂ SiO ₅	In: Proceedings of the 13th Conference on Glass and Ceramics, Varna

			1999, vol. 2, eds. B. Samuneva, S. Bachvarov, I. Gutzow and Y. Dimitriev, Science Invest, Sofia 1999, pp. 166-171
54	Tzvetkov, G. , Minkova, N.	Mechanochemical stimulation of the synthesis of lanthanum oxupatite	Materials Letters 39 (1999) 354-358
55	Цветков, Г. , Минкова, Н.	Механохимично стимулиран твърдофазен синтез на лантанови силикати	В: Научно-технологична сесия Контакт'98, София, 1998, стр. 25-30.
56	Tzvetkov, G. , Minkova, N.	Mechanochemical Effects of Milling on Lanthanum Sesquioxide	Analytical Laboratory 7 (1998) 192-196
57	Tzvetkov, G. , Minkova, N.	Mechanochemical effects on yttrium-aluminium garnet	Materials Letters 35 (1998) 135-138
58	Minkova, N., Terziev, A., Tzvetkov, G. , Todorovsky, D.	Conversion of yttrium-aluminium garnet to soluble forms as a result of mechanochemical treatment	Monatshefte für Chemie 128 (1997) 593-598