

Dr. Kristina Lilova

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SETARAM Inc.
Hillsborough, NJ

Work experience

Dates of employment	02/2015 – Present
Position title	Applications Manager
Supervisor	Link Brown SETARAM Inc., Valley Business Park, Suite 22, 216 US Highway 206 (908) 262-7060, link.brown@setaram.com
Main responsibilities	<ul style="list-style-type: none">• Responsible for starting and running SETARAM's demo/contract testing laboratory at the Americas Headquarters• Work with customers to help them with their applications needs; to select the appropriate methods and techniques, and to perform calorimetric measurements on bulk and nanosized inorganic and organic compounds;• Develop materials and provide training for customers on thermal analysis and calorimetry;• Present SETARAM instruments, technology and applications at conferences and seminars;• Publish new scientific papers and applications notes in the thermodynamics field;
Dates of employment	06/2013 – 02/2015
Position title	Assistant Project Scientist
Supervisor	Professor Alexandra Navrotsky, Peter A. Rock Thermochemistry Laboratory and NEAT ORU, Chemistry Annex room 4440, UC Davis (530) 752-3292, anavrotsky@ucdavis.edu
Main responsibilities	<ul style="list-style-type: none">• Design specific projects, including the selection of appropriate methods and techniques;• Supervise students or technicians regarding the technical aspects of the

	<p>research, including methods development, troubleshooting problems, interpreting results and planning follow-up experiments;</p> <ul style="list-style-type: none">• Mentor students and postdocs;• Perform high temperature heat capacity measurements of crystalline and amorphous silicates;• Study the thermodynamics of mixed oxide containing transition metals, rare earths, actinides, metals and alloys
Dates of employment	05/2009 – 05/2013
Position title	Postdoctoral Research Associate
Supervisor	Professor Alexandra Navrotsky, Peter A. Rock Thermochemistry Laboratory and NEAT ORU, Chemistry Annex room 4440, UC Davis (530) 752-3292, anavrotsky@ucdavis.edu
Main responsibilities and achievements	<ul style="list-style-type: none">• Study the thermodynamics of complex spinel oxides (containing Ni, Fe, Al, Ti, Cr, Mn, Zn, Cu) with environmental and industrial application and their stability and properties as related to the structure;• Study the thermodynamics of bulk and nano silicates;• Study the thermodynamics of lanthanum and lithium mixed oxides;• Perform thermochemical measurements of multiphase mineral assemblage of feldspathoid minerals (sodium aluminosilicates) as a part of radioactive waste management;• Study the energetics of nanoparticles and the surface area/energy – stability relations;• Developed a new consistent high-temperature calorimetry methodology to study the stability of refractory binary and multicomponent oxides with a further application to various mineral phases;• Developed a new calorimetric methodology to investigate intermetallic compounds, metals and multicomponent chalcogenides and arsenides;• Developed a new analytical method to determine oxidation state in complex refractory oxides containing mixed valence cations;• Responsible for troubleshooting and training people on Setaram AlexSYS calorimeter;• Solid state synthesis, TG/DSC and DTA, XRD, TEM, FTIR, SEM, EMPA;• Model cation distribution, electronic and mixing properties;

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- Mentor students and postdocs
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Dates of employment 11/2008 – 04/2009

Position title

Exchange Visitor

Supervisor

**Professor Alexandra Navrotsky,
Peter A. Rock Thermochemistry Laboratory and NEAT ORU,
Chemistry Annex room 4440, UC Davis
(530) 752-3292, anavrotsky@ucdavis.edu**

Main responsibilities

- Investigate the thermodynamic properties of Co-containing spinel solid solutions, using high – temperature oxide melt solution calorimetry

Dates of employment 03/2008 – 10/2008

Position title

Senior Assistant Professor

Supervisor

**Prof. Irina Karadjova
Faculty of Chemistry and Pharmacy, University of Sofia “St. Kliment
Ohridski”, Bulgaria
(+359 2) 816 1356, karadjova@chem.uni-sofia.bg**

Main responsibilities

- Teach Inorganic Chemistry course;
- Study the thermodynamics of high-temperature alternative lead-free solders;
- Investigate the properties of ternary Ni-Sn-Zn alloys

Dates of employment 10/2007 – 01/2008

Position title

Assistant Professor (part-time)

Supervisor

**Assoc. Prof. Iliyan Ivanov
Faculty of Chemistry, University of Plovdiv “Paisii Hilendarski”,
Bulgaria
(+359 32) 261 403, ivanov@uni-plovdiv.bg**

Main responsibilities

- Teach General Chemistry course;
- Investigate of prospective lead-free solders;
- Wet-chemical studies of lead-free solder precursors

Education

2005 – 2007	Chimie du Solide Minéral” Laboratory, UMR 7555 Faculty of Science and Technologies, University Henri Poincaré – Nancy 1, France (currently University of Lorraine)
Field of study	Materials Science
Degree earned	Ph.D. in Physics and Chemistry of Matter and Materials, “cotutelle de thèse”

Jan – Jul 2005	Chimie du Solide Minéral” Laboratory, UMR 7555 Faculty of Science and Technologies, University Henri Poincaré – Nancy 1, France (currently University of Lorraine)
Field of study	Metallurgy
Degree earned	Exchange student

2004 – 2007	Applied Inorganic Chemistry Department Faculty of Chemistry and Pharmacy University of Sofia “St. Kliment Ohridski”, Bulgaria
Field of study	Materials Science/Solid State Chemistry
Degree earned	Ph.D. in Solid State Chemistry, “cotutelle de thèse”

1997 – 2002	Faculty of Chemistry and Pharmacy University of Sofia “St. Kliment Ohridski”, Bulgaria
Field of study	Chemistry/Chemical Ecology
Degree earned	M. Sc. in Chemistry

Awards

Institute for Complex Adaptive Matter (ICAM) Junior Exchange Award for research related travel from Sofia, Bulgaria to Davis, California, USA from November 3, 2008 to April 30, 2009

Nomination for “2012 Award for Excellence in Postdoctoral Research” at University of California, Davis

Certificate of Merit for the First Platform Presentation titled “**Energetics of Iron Spinel at Bulk and Nanoscale**”, given before the Division of Environmental Chemistry at the 244th National Meeting of the American Chemical Society

Associated Editor of “Spinel Renaissance: The past, present, and future of those ubiquitous minerals and materials” Special Section in *American Mineralogist*

Co-editor of *Frontiers in Energy Research journal*, section Fuel Cells

Invited seminars

University of California, Santa Barbara	June 2011
247 th ACS National Meeting, Dallas	March 2014
California State University Chico	July 2014
XIV Mexican and V International Conference of Catalysis	April 2015

List of Publications

A. Mielewczyk-Gryn, S. Wachowski, K. Lilova, M. Gazda, A. Navrotsky (2015), *Influence of antimony substitution on spontaneous strain and stability of lanthanum ortho-niobate*, *Ceramics International*, 41 (2), 2128-2133

J. Miettinen, K. Lilova, G. Vassilev (2015), *Thermodynamic description of ternary fe-b-x systems. Part 3: Fe-B-Mn*, *Archives of Metallurgy and Materials*, 59 (4), 1481-1485

K.I. Lilova, C.I. Pearce, K.M. Rosso, A. Navrotsky (2014) *Energetics of Spinel in the Fe—Ti—O System at the Nanoscale*, *European Journal of Chemical Physics and Physical Chemistry*, 15, 3655-3662

J.V. Zaikina, E. Muthuswamy, K. I. Lilova, Z.M. Gibbs, M. Zeilinger, G.J. Snyder, T.F. Fässler, A. Navrotsky, S.M. Kauzlarich (2014) *Thermochemistry, morphology, and optical characterization of germanium allotropes*, *Chemistry of Materials*, 26, 3263 – 3271

K.I. Lilova, R. Hord, L. Alff, B. Albert, A. Navrotsky (2013) *Thermodynamic study of orthorhombic T^x and tetragonal T' lanthanum cuprate, La_2CuO_4* , *Journal of Solid State Chemistry*, 91-94

S.K. Rakshit, S.C. Parida, Kristina Lilova, A. Navrotsky (2013) *Thermodynamic studies of $CaLaFe_{11}O_{19}(s)$* , *Journal of Solid State Chemistry*, 201, 68–74

C. L. Snow, K. I. Lilova, A.V. Radha, Q. Shi, S. Smith, A. Navrotsky, J. Boerio-Goates, B.F. Woodfield (2013) *Heat capacity and thermodynamics of a synthetic two-line ferrihydrite, $FeOOH \cdot 0.027H_2O$* , *Journal of Chemical Thermodynamics*, 58, 307 – 314

K. I. Lilova, C. I. Pearce, C. Gorski, K. M. Rosso, A. Navrotsky (2012), *Thermodynamics of the Magnetite-Ulvöspinel (Fe_3O_4 - Fe_2TiO_4) Solid Solution*, *American Mineralogist*, 97, 1330 – 1338

K. I. Lilova, K. Shih, C.-W. Pao, J.-F. Lee and A. Navrotsky (2012), *Thermodynamics of $NiAl_2O_4$ - $NiFe_2O_4$ solid solutions*, *Journal of American Ceramic Society*, 95 (1), 423 – 430

K. I. Lilova, F. Xu, K. M. Rosso, C. I. Pearce, S. Kamali and A. Navrotsky (2012), *Oxide melt solution calorimetry of Fe(II)-bearing oxides and application to the magnetite – maghemite (Fe_3O_4 - $Fe_8/3O_4$) system*, *American Mineralogist*, 97 (1), 164 – 175

G.P. Vassilev, J. Romanowska, D.F. Soares, P. Docheva, J. Miettinen, P. Šebo, J.-C. Tedenac, P. Brož, V.D. Gandova, N.P. Milcheva, K. Lilova, G. Wnuk, J. Buršík, D. Živković (2012), *GP3 - Design, process and control in a multiscale domain of Cu-Ni-X-Y (X, Y=Sn, Bi, Zn, Ti) based alloys*, In A.Kroupa. *Handbook of High-Temperature Lead-Free Solders: Group Project Reports, Vol.3. 1. vydání. Brno, Česká Republika: COST office, Brussels, Belgium, 2012. s. 59-86, 28 s. Volume 3. ISBN 978-80-905363-3-3*

A. Navrotsky, C. Ma, K. Lilova, and N. Birkner, (2010) *Nanophase Transition Metal Oxides Show Large Thermodynamically Driven Shifts in Oxidation-Reduction Equilibria*, *Science* 330, 199 – 201

K. Lilova, A. Navrotsky, B. Melot and R. Seshadri (2010) *Thermodynamics of $CoAl_2O_4$ - $CoGa_2O_4$ solid solutions*, *Journal of Solid State Chemistry* 183 (6), 1266 – 1271

V. Gandova, D. Soares, K. Lilova, J.C. Tedenac, G. P. Vassilev (2010) *Phase equilibria in the Sn-Zn-Ni system*, *International journal of materials research*, 102 (3), 257 – 268

V. Gandova, K. Lilova, H. Malakova, B. Huber, N. Milcheva, H. Ipsen, J. Vrestal, and G. Vassilev, (2010) *On the synthesis of Bi-based precursors for lead-free solders development*, *Journal of Mining and Metallurgy Section B: Metallurgy*, 46 (1) B, 11 – 24

G. Vassilev, K. Lilova, and J.-C. Gachon, (2009) *Phase diagram investigations of the Ni-Sn-Bi system*, *Journal of Alloys and Compounds, Vol. 469, Issues 1-2*, 264 – 269

G. Vassilev, K. Lilova, and J.-C. Gachon (2008) *Calorimetric and phase equilibria studies of the Ni–Sn–Bi system*, *Crystal Research and Technology*, 43, 9, 980 – 985

G.P. Vassilev and K.I. Lilova, (2007) *Notes on some supposed transitions of the phase NiBi*, *Crystal Research and Technolog.*, 42, 237

G.P. Vassilev, K.I. Lilova, and J.C. Gachon, (2007) *Calorimetric and phase diagram studies of the Co–Sn system*, *Intermetallics*, 15 1156–1162

G. Vassilev, K. Lilova, and J.-C. Gachon, (2007) *Supplementary X-ray studies of the Ni–Sn–Bi system*, *Journal of Mining and Metallurgy Section B: Metallurgy* 43(2)

G.P. Vassilev and K.I. Lilova, (2006) *Contribution to the thermodynamics of the Co–Sn system*, *Archives of Metallurgy and Materials*, Vol. 51 (3) 365-374.

G.P. Vassilev, K.I. Lilova, and J.C. Gachon, (2006) *Enthalpies of formation of Ni–Sn compounds*, *Thermochimica Acta*, 447 (1) 106 – 108.