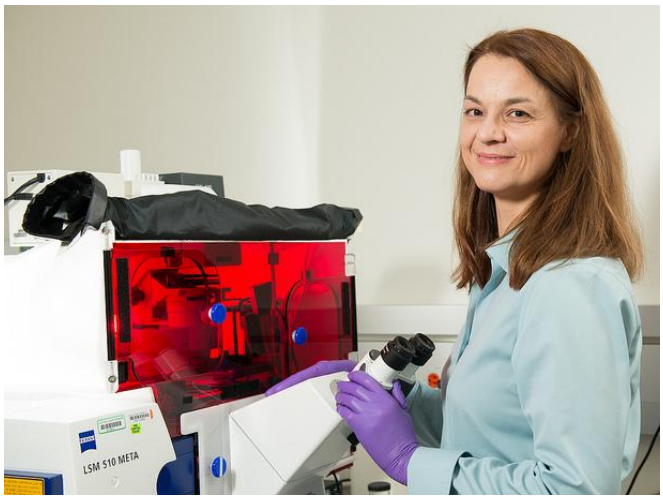


Dr. Elena A. Rozhkova
Scientist
NanoBio Interfaces Group
Office: Building 440
Phone: 630-252-2863
Fax: 630-252-5739
E-mail: rozhkova@anl.gov
Argonne National Laboratory
Center for Nanoscale Materials
9700 S. Cass Ave, Building 440
Argonne, IL 60439-4806

PhD in Chemistry from Moscow State Academy of Fine Chemical Technology, Moscow, Russia

Professional Background:

PhD in Chemistry from Lomonosov's Moscow State Academy of Fine Chemical Technology, Moscow, Russia, 1997
Postdoctoral training: JSPS postdoctoral fellow at the Institute of Multidisciplinary Research for Advanced Materials (Tohoku University, Sendai, Japan);
Princeton University, Department of Chemistry, Princeton, NJ, USA.

Research Interests:

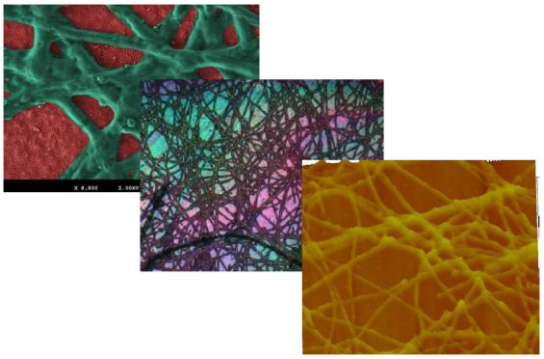
- Functional nanobio hybrid materials
- Stimuli-responsive materials within biological machinery
- Bio-inspired materials for clean energy production
- Biological Catalysis
- Synchrotron X-ray imaging of cellular bioenergetic processes at Nanoscale

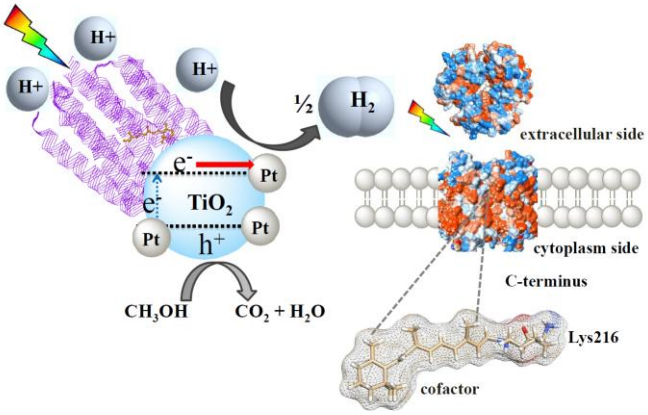
Selected Recent Publications:

Clean Energy and Bio-inspired Catalysis:

Shankar Balasubramanian, Peng Wang, Richard D. Schaller, Tijana Rajh and **Elena A. Rozhkova***, High Performance Bio-assisted Nano Photocatalyst for Hydrogen Production, *Nano Letters* **2013**

D. K. Bora, **E. A. Rozhkova**, K. Schrantz, P. Wyss, A. Braun, T. Graule, E. C. Constable, Functionalization of Nanostructured Hematite Thin Film Electrodes with the Light Harvesting Membrane Protein C-Phycocyanin yields Enhanced Photocurrent; *Advanced Functional Materials*, *22*, 490–502*,* **2012**



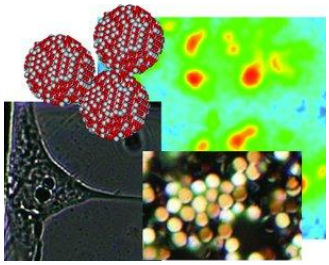


E. A. Rozhkova; J.-C. Chae; G. J. Zylstra; E. M. Bertrand; M. Alexander-Ozinskas; D. Deng; L. A. Moe; J. B. van Beilen; M. Danahy; J. T. Groves; R. N. Austin, Profiling Mechanisms of Alkane Hydroxylase Activity in Vivo Using the Diagnostic Substrate Norcarane, *Chem. Biol.* **2007**, *14*, 165.

S Fuziwara, I Sagami, **EA Rozhkova**, D Craig, MA Noble, AW Munro, SK Chapman, T Shimizu, Catalytically functional flavocytochrome chimeras of P450BM3 and nitric oxide synthase, *J. Inorganic Biochemistry* 91 (4): 515-526 (2002)

E.A. Rozhkova, N Fujimoto, I Sagami, SN Daff, T Shimizu, Interactions between the isolated oxygenase and reductase domains of neuronal nitric-oxide synthase - Assessing the role of calmodulin, *J. Biological Chemistry* 277 (19): 16888-16894 (2002)

Stimuli-responsive materials within biological machinery:



E. A. Rozhkova, Nanoscale Materials for Tackling Brain Cancer: Recent Progress and Outlook, *Advanced Materials,* 23, H136–H150 **2011**

D-H. Kim, E A Vitol, J Liu, S Balasubramanian, D J. Gosztola, E Cohen, V. Novosad, **E. A. Rozhkova*** Stimuli-responsive magnetic nanomicelles as multifunctional heat and cargo delivery vehicles, *Langmuir*, DOI: 10.1021/la3044158 (2013)

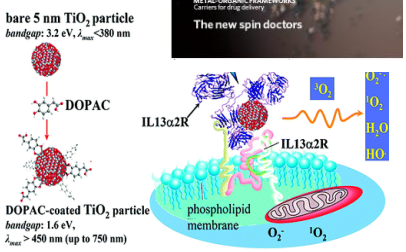
E.A. Vitol, V. Novosad and **E.A. Rozhkova***, Microfabricated magnetic structures for future medicine: from sensors to cell actuators, *Nanomedicine,* 7(10), 1611-1624 (2012) INVITED

E.A. Vitol, V. Novosad* and **E.A. Rozhkova***, Multifunctional Ferromagnetic Disks for Modulating Cell Function, *IEEE TRANS MAG*, VOL. 48, NO. 11, NOVEMBER (2012) INVITED

D.H. Kim, P. Karavayev, **E.A. Rozhkova**, J. Pearson, V. Yefremenko, S.D. Bader, V. Novosad, Mechanoresponsive system based on sub-micron chitosan-functionalized ferromagnetic disks, *Journal of Materials Chemistry* 21, 8422-8426 **2011**

D.-H. Kim, **E. A. Rozhkova***, I. V. Ulasov, S. D. Bader, T. Rajh, M. S. Lesniak & V. Novosad**,** Biofunctionalized magnetic-vortex microdiscs for targeted cancer-cell destruction, *Nature Materials 9*, 165, **2010**

E. A. Rozhkova, V. Novosad, D.-H. Kim, J. Pearson, R. Divan, T. Rajh, S. D. Bader, Ferromagnetic Microdisks as Carriers for Biomedical Applications, *J. Appl. Phys.*, *105*, 07B306, **2009**.

N. M. Dimitrijevic, **E. A. Rozhkova**, T. Rajh, Dynamics of Localized Charges in Dopamine-Modified TiO2 and their Effect on the Formation of Reactive Oxygen Species, *J. Am. Chem. Soc.*, *131*, 2893, **2009**.

E. A. Rozhkova, I. Ulasov, B. Lai, N. M. Dimitrijevic, M. Lesniak, T. Rajh, A High Perf Targeted Brain Cancer Therapy, *Nano Letters*, *9*, 3337, **2009**.