Preface

Horst Kisch¹ · Wojciech Macyk² · Oksana Linnik³

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With great pleasure we dedicate this special issue of *Research on Chemical Intermediates* to Prof. Anna Eremenko on the occasion of her 80th birthday. Anna was born in 1938 in St. Petersburg, Russia. In Kyiv, Ukraine, she started to study chemistry at T. Shevchenko University. For her Ph.D. thesis she moved to the Pisarzhevsky Institute of Physical Chemistry of NASU, where she worked on details of molecular adsorption at metal-substituted zeolites under the supervision of Prof. I. Neimark. In her subsequent research to obtain the title of doctor of science, she focused on fundamental and applied aspects of surface photochemistry, specifically of donor–acceptor complexes of aromatic molecules in heterogeneous systems and later on heterogeneous photocatalysis under ultraviolet–visible (UV–Vis) light excitation. The corresponding thesis “Photonics of adsorption complexes of molecules of aromatic hydrocarbons on the surface of dispersed silica” was performed in the Department of Surface Chemistry of the Pisarzhevsky Institute of Physical Chemistry of NASU and defended in 1989 at the Karpov Physico-Chemical Institute, Russian Academy of Science, Moscow. Since 1986 she has worked at the Chuiko Institute of Surface Chemistry of the National Academy of Sciences of Ukraine, where she obtained the titles of Leading Scientist and Professor in 1989 and 1994, respectively. From 1994 until 2010 she was a head of the Surface Photonics Department.

Anna’s research has been devoted to fundamental aspects of the photochemistry of nanosized oxide systems in the presence of various substrates. The primary reactions following UV–Vis excitation, including electron, proton, and energy transfer between adsorbed molecules and solids, were investigated by stationary and time-resolved spectral methods. In addition to semiconducting oxides of titanium, zirconium, and iron as powder systems [1–8], also thin films of nanosized titania on glass were prepared by sol–gel procedures and tested toward their photocatalytic activity [9–12]. In addition to mineralization of toxic organic

✉ Oksana Linnik
okslinnik@yahoo.co.uk

¹ Department Chemie und Pharmazie, Universität Erlangen–Nürnberg, Egerlandstr.1, D-91058 Erlangen, Germany

² Faculty of Chemistry, Jagiellonian University, ul. Gronostajowa 2, 30-387 Kraków, Poland

³ Chuiko Institute of Surface Chemistry of National Academy of Sciences of Ukraine, G. Naumov str.17, Kyiv 03164, Ukraine

compounds, such as textile dyes, chlorine-, nitro-, and amino-aromatic compounds, and carcinogenic polyacenes, as well as removal of toxic ions of transition metals such as chromium and mercury, the photofixation of dinitrogen was also studied [13]. With her colleagues, Anna focuses also on the biological reactivity of metal nanoparticles and reported on a simple method to obtain cotton fabrics modified by silver and copper species with high bactericidal efficiency [14–20]. Recently, they developed a method for synthesis of stable compositions based on nanoparticles of gold and silver, which show high antitumor activity but low toxicity as compared with commonly used drugs [21].

Anna has published about 300 publications, including 5 chapters in books, 10 review articles in leading international and national scientific journals, and 5 patents.

This special issue contains 21 papers addressing problems related to Anna's research interests. The broad scope of heterogeneous photochemistry related to energy and electron transfer at solid–liquid and solid–gas interfaces is impressively reflected by these contributions.

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