

## Biographical Sketch

### Orlin D. Velev

**Position/Affiliation:** Assistant Professor  
Department of Chemical Engineering  
North Carolina State University  
Raleigh, North Carolina 27695-7905

#### Education:

Department of Chemistry, University of Sofia  
M.Sc. in Chemical Physics and Theoretical Chemistry 1989  
University of Sofia and Bulgarian Academy of Sciences  
Ph.D. in Physical Chemistry 1996  
Department of Chemical Engineering, University of Delaware  
Post-doctoral Fellow in Colloidal Science and Engineering 1996-1998

#### Professional positions and experience:

2001- Assistant Professor, Dept. of Chemical Engineering, North Carolina State University  
1998- 2001 Research Assistant Professor, Dept. of Chemical Engineering, Univ. of Delaware  
1996-1998 Postdoctoral Fellow, Dept. of Chemical Engineering, University of Delaware  
1994-1995 Researcher, Nagayama Protein Array Project, Japanese Exploratory Research for Advanced Technology program, Tsukuba, Japan  
1993-1994 Research and teaching fellow, Laboratory of Thermodynamics and Physico-Chemical Hydrodynamics (LTPH), University of Sofia, Bulgaria  
1991-1994 Short-term visiting researcher, Universities of Bristol (England) and Patras (Greece)  
1990-1993 Research and teaching assistant and graduate student in the Laboratory of LTPH

#### Selected awards:

CAREER Award (National Science Foundation, 2003)  
Ralph E. Powe New Faculty Award (Oak Ridge Associated Universities, 2002)  
Camille and Henry Dreyfus New Faculty Award (2001)  
Bulgarian Governmental awards for excellence from the Ministry of Science and High Education, and from the Ministry of Chemical and Biochemical Industry (1989)  
First Award at the National Student Science and Creativity Competition (Bulgaria, 1989)  
Named governmental stipend for outstanding students (Bulgaria, 1987-89)  
Bronze Medal from the International Chemistry Olympiad (Stockholm, Sweden, 1982)  
First Award at the Bulgarian National Chemistry Olympiad (1982)

#### Selected academic activities:

Active reviewer for more than 10 scientific journals  
Cited more than 1200 times in papers by other authors  
Presented invited seminars in DuPont (DE), Honeywell (NJ), Rohm and Haas (PA), KRAFT Foods (IL), Westvaco (MD), Procter and Gamble (OH), Kodak (NY) and more than 25 US and international universities

Invited speaker at the 2002 ACS annual meeting, 2002 MRS Spring meeting, 2002 ACS Colloids meeting, 2002 American Conference on Crystal Growth West, Particles 2001 Conference, 2001 ACS Spring meeting, 2001 CIGS meeting of the Royal Society of Chemistry, UK, and 2000 MRS Fall meeting  
Symposium organizer at the 2003 Spring MRS meeting, session chair at three recent meetings

### **Selected recent research publications (of 46 total)**

- S. O. Lumsdon, J. P. Williams, E. W. Kaler and O. D. Velev, "Dielectrophoretic Assembly of Oriented and Switchable Two-dimensional Photonic Crystals", *Appl. Phys. Lett.* **82**, 949 (2003).
- P. M. Tessier, S. D. Christesen, K. K. Ong, E. M. Clemente, A. M. Lenhoff, E. W. Kaler and O. D. Velev, "On-line Spectroscopic Characterization of Sodium Cyanide with Nanostructured Gold SERS Substrates" *Appl. Spectr.* **56**, 1524 (2002).
- K. D. Hermanson, S. O. Lumsdon, J. P. Williams, E. W. Kaler and O. D. Velev, "Dielectrophoretic assembly of electrically functional microwires from nanoparticle suspensions", *Science* **294**, 1082 (2001).
- P. M. Tessier, O. D. Velev, A. T. Kalambur, J. F. Rabolt, A. M. Lenhoff and E. W. Kaler, "Structured Metallic Films for Optical and Spectroscopic Applications via Colloidal Crystal Templating", *Adv. Mater.*, **13**, 396 (2001).
- O. D. Velev, E. W. Kaler and A. M. Lenhoff, "Surfactant Diffusion into Lysozyme Crystal Matrices Investigated by Quantitative Fluorescence Microscopy", *J. Phys. Chem. B*, **104**, 9267 (2000).
- O. D. Velev, E. W. Kaler and A. M. Lenhoff, "A Class of Microstructured Particles via Colloidal Crystallization", *Science*, **287**, 2240 (2000).
- P. M. Tessier, O. D. Velev, A. T. Kalambur, J. F. Rabolt, A. M. Lenhoff and E. W. Kaler. "Assembly of Gold Nanostructured Films Templated by Colloidal Crystals and Use in Surface-Enhanced Raman Spectroscopy", *J. Am. Chem. Soc.*, **122**, 9554 (2000).
- O. D. Velev and A. M. Lenhoff, "Colloidal Crystals as Templates for Porous Materials", *Curr. Opinion Colloid Interface Sci.*, **5**, 56 (2000).
- O. D. Velev and E. W. Kaler, "Structured Porous Materials via Colloidal Crystal Templating: From Inorganic Oxides to Metals", *Adv. Mater.*, **12**, 531 (2000).
- O. D. Velev, P. M. Tessier, A. M. Lenhoff and E. W. Kaler, "A Class of Porous Metallic Nanostructures", *Nature*, **401**, 548 (1999).
- O. D. Velev, E. W. Kaler and A. M. Lenhoff, "Photochemical Micromachining of Lysozyme Crystals", *Adv. Mater.*, **11**, 1345 (1999).
- O. D. Velev and E. W. Kaler, "In Situ Assembly of Colloidal Particles into Miniaturized Biosensors", *Langmuir*, **15**, 3693 (1999).
- K. P. Velikov and O. D. Velev, "Formation of 2D Structures of Micrometer Sized Latex Particles Inside Thinning Foam Films", in "Emulsions, Foams and Thin Films", K. L. Mittal, P. Kumar, Eds., Marcel Dekker, New York, 2000.
- O. D. Velev, T. A. Jede, R. F. Lobo and A. M. Lenhoff, "Microstructured Porous Silica Obtained via Colloidal Crystal Templates", *Chem. Mater.*, **10**, 3597 (1998).
- O. D. Velev, E. W. Kaler and A. M. Lenhoff, "Protein Interactions in Solution Characterized by Light and Neutron Scattering: Comparison of Lysozyme and Chymotrypsinogen", *Biophys. J.*, **75**, 2682 (1998).
- K. P. Velikov, F. Durst and O. D. Velev, "Direct Observation of the Dynamics of Latex Particles Confined Inside Thinning Water-Air Films", *Langmuir*, **14**, 1148 (1998).

### **Professional Society Memberships**

American Chemical Society (ACS), American Institute of Chemical Engineers (AIChE), Materials Research Society (MRS), American Crystallographic Association (ACA and AACG), European Colloid and Interface Society (ECIS), Sigma Xi