

**Name:****SLOBODAN ŽUMER,**

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Web: - personal: <https://www.fmf.uni-lj.si/en/directory/3589/>- group: <http://softmatter.fmf.uni-lj.si>**Personal data:**

Born May 9, 1945, Ljubljana, Slovenia

Married; two children

**Education:**

1974/75 Postdoc (Physics) Universite Libre de Bruxelles, adviser Prof. J. Jeneer

1973 PhD (Physics), University of Ljubljana, adviser Prof. R. Blinc

1972 MSc (Physics), University of Ljubljana

1967 BSc (Physics), University of Ljubljana

**Research and teaching positions:**

2010-13 Scientific Adviser – Principal Investigator, Center of Excellence NAMASTE, Ljubljana

1987 -&gt; Professor of Physics, Physics Department, University of Ljubljana

1987 -&gt; Scientific Adviser, Jozef Stefan Institute, Ljubljana

1986-95 Adjunct Associate Professor, Department of Physics, Kent State University, Kent OH

1992-93 Visiting Professor, Liquid Crystal Institute, Kent State University

1981-87 Associate Professor of Physics, Physics Department, University of Ljubljana

1984-86 Visiting Scientist, Liquid Crystal Institute, Kent State University

1974-80 Assistant Professor of Physics, Physics Department, University of Ljubljana

1975-76 Postdoctoral Fellow, Physics Department, Universite Libre de Bruxelles, Belgium

1968-73 Research and teaching assistant, Physics Department, University of Ljubljana

**Main recent research topics:**

Theory, modeling, and simulations of soft matter. *Subjects:* topological soft matter, liquid crystals, colloidal dispersions, colloidal crystals, soft composites, photonic crystals, liquid crystalline elastomers, polymer dispersed liquid crystals. *Phenomena:* ordering, transitions, defects, complex structures, confinement, wetting&dewetting, topology and geometry of soft structures, structural forces, fluctuation forces, Casimir effect, dynamics, hydrodynamics, magnetic relaxation, optics, photonics, plasmonics etc.

**Courses (recently given):**

Thermodynamics, Statistical Mechanics, Electromagnetism, Introductory Physics, Physics Seminar, Physics of Soft Matter.

**Awards and fellowships:**

- 2017 [National Zois Award for lifetime research achievements](#). In particular for his achievements in [theoretical physics of anisotropic soft mater](#)
- 2017 Elected as APS Fellow of [American Physical Society](#) (APS)
- 2016 Elected as Member of [European Academy of Sciences and Arts](#) (EASA) Salzburg,
- 2014 Elected as Honored Member of the International Liquid Crystal Society “*For his over four decades of pioneering and prolific contributions to the scientific community of soft condensed matter as one of the founding fathers of the physics of liquid crystals...*” (<http://www.lcinet.kent.edu/ILCS/main/page101/page117/page219/page219.html>)
- 1990 Boris Kidric (National) Prize for the research of Polymer Dispersed Liquid Crystals
- 1984 Fulbright Travel Grant, Council for the International Exchange of Scholars
- 1980 Boris Kidric Foundation Prize for the research of Magnetic Relaxation in Condensed Matter
- 1975-76 Fellowship of the Belgian Government

### Selected national appointments:

- 2015-> Member of the Board of Governors of National Institute of Chemistry, Ljubljana, Slovenia
- 2010 - 15 Member of the national scientific board of Natural & Mathematical Sciences
- 2007 - 10 Member of the scientific board of National Research & Development Agency
- 2005 - 07 Dean of the Faculty of Mathematics and Physics, University of Ljubljana
- 2003 - 05 National Coordinator for the Research in Physics
- 1997 - 99 Head of the Physics Department, Faculty of Mathematics and Physics, University of Ljubljana

### Recent international appointments:

#### Executive function:

- President of the *International Liquid Crystal Society*, 2008-12

#### Member of international boards:

- Member of the *Soft Matter* Advisory Board 2017 ->
- Member of the Editorial board of the *4 Open* of EDP Sciences, 2017 ->
- Member of the Editorial board of the *Crystals*, 2015 ->
- Member of the External Advisory Committee of Center of Physics and Engineering of Advanced Materials Lisbon (2014 ->)
- Member of the Board of Directors of the International Liquid Crystal Society as past president 2012-16
- Member of the Editorial board of the *Liquid Crystals*, 2010 – 13
- Corresponding Member of the *Journal Club for Condensed Matter Physics*, 2009 ->
- Member of the Awards and Honors Committee of the *Int. Liquid Crystal Society* 2006-08
- Member of the Board of Directors of the *International Liquid Crystal Society* 2004-08, 2012-16
- Member of the Editorial board of the *European Physical Journal E* 2001-07

#### Organizer of international conferences:

- Vice-chair, International conference: *Liquids 2017*, Ljubljana 2017,
- Co-chair, *6th Workshop on Liquid Crystals for Photonics*, Ljubljana 2016,
- Co-chair of the *Planer-Smoluchowski Soft Matter Workshop on Liquid Crystal Colloids*, Lviv, Ukraine 2011
- Co-director of the 15<sup>th</sup> Workshop: *Liquid Crystal Phases and Nano-structures*, Erice, IT 2008
- Chairman of the Organizing Committee of the *4th International Workshop on Liquid Crystalline Elastomers*, Ljubljana 2007
- Member of the Organizing Committee of the *European Polymer Congress*, Portorož 2007

- Co-director of the 13<sup>th</sup> Workshop Colloids, Interfaces and Liquid Crystals, Erice 2006
- Vice-chairman of the Organizing committee of the *Inter. Liquid Crystal Conf.*, Ljubljana, 2004
- Co-director of the ESF Exploratory Workshop *Liquid Crystal Colloid Dispersions*, Bled 2003
- Co-director of the NATO Advanced Research Workshop *Computational methods for Polymers and Liquid Crystalline Polymers*, Erice, 2003
- Co-director of the Symposium *Basic and Applied Liquid Crystals Research in the Nineties: a Decade of Progress*: at *International Conf. on Advanced Materials ICAM 2001*, Cancun, 2001
- Co-director of the NATO Advanced Research Workshop *Computer Simulations of Defects in Liquid Crystals including their Relation to Theory and Experiment*, Erice, 2000
- Co-director of the SILC EU minischool *Theory and Modeling of Liquid Crystals*, Portoroz, 2000

#### International conference committees:

- Member of the Scientific Committee of the *International Liquid Crystal Conference*, Kyoto 2018, Kent 2016, Dublin 2014, Mainz 2012, Krakow 2010, Jeju 2008, Keystone 2006, Edinburgh 2002, Sendai 2000, Strasboug 1998, Kent 1996, Budapest 1994.
- Member of the Scientific Committee of the *Topical Meeting on the Optics of Liquid Crystals*, Honolulu 2013, Erice 2009
- Member of the Scientific Committee of the *International Liquid Crystal Elastomer Conference*, Erice 2015, Shanghai 2013, Lisboa 2011, Kent 2009
- Member of the Scientific Committee of the International conference Optics 2017

#### Other synergy activities:

- Refereeing: Science, Nature, Nature Communications, Nature Materials, Nature Physics, PRX, PNAS, Scientific Reports, PRL, Advanced Materials, Scientific Reports, Soft Matter, Langmuir, APL, EPL, JAP, JCP, PRE, European Physics Journal E, Liquid Crystals, MCLC,...
- Evaluator for Research Agencies: ARRS (Slovenia), NSF (USA), DOE (USA), ACS (USA), FP7 (EC), ERA (EC), DFG (Germany), Austrian Science Fund (A), Dutch Research Council (Netherlands), Research Foundation Flanders (B), ...

#### **Memberships in International Societies:**

American Physical Society (APS) - fellow

AMPERE Society

European Physical Society (EPS)

Institut of Physics (IOP)- fellow

International Liquid Crystal Society (LCS) - Honored Member

#### **Research groups, programs, networks and centers in last 10 years:**

- *Physics of Soft and Partially Ordered Matter* at the University of Ljubljana. Research group: Members: professor, associate professor 4 assistant professors, 3 postdocs, 7 PhD students & shorter time visitors (<http://softmatter.fmf.uni-lj.si/>).
- Head & PI of the joint J. Stefan Institute and Univ. of Ljubljana (2015-2020) Research Program Physics of Soft matter, surfaces and nanostructures (9 Full time equivalents with 5 co-PIs).
- PI of the R&D project “Soft matter composites for optical, electronic, photonic and sensor applications” within the Center of Excellence NAMASTE (EU Structural Funds, 2010-13).
- Head & PI of the joint J. Stefan Institute and Univ. of Ljubljana 2009-2014 Research Program *Physics of Soft matter, surfaces and nanostructures* (9 Full time equivalents with 4 co-PIs).
- Partner & PI in the EC ITN Marie Curie Research Network HIERARCHY *Hierarchical Assembly in Controllable Matrices* ( Nijmegen, Aachen, Eindhoven, Göttingen, Ljubljana, Southampton, Wageningen) (2008 – 12)

- Principal Investigator of the research and development project “Complex materials: from soft materials to hard coatings” at Center of Excellence (EU Structural Funds, 2005-08).

#### **PhD Students & Postdocs in last 5 years (total completed PhDs:20):**

- *Current PhD student:*, Shun Wang,
- *Defended PhDs:* M. Čančula (2017), D. Seč (2014), T. Porenta (2013), S. Čopar (2012),
- *Exchange PhD students:* D. Cameron, R. Jose, M. K. McCamley
- *Postdocs:* D. Cameron, S. Čopar, D. Jayasri, G. Poy
- *Awarded PhD Students:* S. Čopar 2014 and M. Ravnik 2010: International Glenn Brown Prize (Given every second year for the best Liquid Crystal PhD Thesis by International Liquid Crystal Society); S. Čopar 2014 and M. Ravnik 2011 Jozef Stefan Golden Emblem Prize for a “resonant” PhD thesis.

#### **Collaborations:**

C. Blanc, M. Nobili (University of Montpellier); D. Broer, (Technische Univ. Eindhoven, Netherlands); V. G. Chigrinov, (Hong Kong UST, China); N. Clark, I. Smalyukh (UC-Boulder); G. P. Crawford, (Univ. of Notre Dame); M. Čopic, I. Mušević, I. Poberaj, M. Ravnik, G. Skačej, D. Svenšek (University of Ljubljana), G. Cordoyiannis (Demokritos, Athens), M. Dennis (University of Bristol), I. Dierking (University of Manchester), H. Finkelmann (University of Freiburg), H.M. Godinho (New University of Lisbon); D. Finotello, O. Lavrentovich, H. Yokoyama (Kent State Univ.); Jun-Ichi Fukuda, (Kyushu University, Japan); Heinz-Siegfried Kitzerow, (Univ. Paderborn, Germany); S. Kralj, G. Posnjak, M. Skarabot, U. Tkalec (Jozef Stefan Institute); R. Kamien, T. Lubensky (University of Pennsylvania); T. Lopez-Leon (ESPCI Paris-Tech); A. Nych, U. Ognysta, V. Pergamenschchik (Institute of Physics, Kyiv); P. Pieranski (Univ. Paris-Sud) H. Tanaka (University of Tokyo); M. Yeomans (Oxford University); C. Zannoni (University of Bologna).

#### **Publications and presentations:**

- > 270 papers (international journals) & > 80 publications (international conf. proceedings),
- > 110 invited talks at international conferences,
- 5 books: co-editor (Taylor&Francis 1996, Kluwer 2001 & 2005, Springer 2006, CRC 2011),
- 3 US & 1 EU patent (co-author),
- Web of Science > 9800 citations, H=51; Research Gate ~ 10500 citations, Google Scholar >14300 citations, H=62

#### **5 selected recent publications:**

- L. E. Aguirre, A. de Oliveira, D. Seč, S. Čopar, P. L. Almeida, M. Ravnik, M. H. Godinho and S. Žumer, *Sensing surface morphology of biofibers by decorating spider silk and cellulosic filaments with nematic microdroplets*, Proc. Natl. Acad. Sci. **113**, 1174 (2016), IF=9.737.
- D. Seč, S. Čopar, S. Žumer, "Topological zoo of free-standing knots in confined chiral nematic fluids", Nature Comms, **5**, 3057 (2014), IF=10.015.
- A. Martinez, M. Ravnik, B. Lucero, R. Visvanathan, S. Žumer, I. I. Smalyukh, "Mutually tangled colloidal knots and induced defect loops in nematic fields", Nature materials, **13**, 258-263, (2014), IF=35.749.
- S. Čopar, U. Tkalec, I. Mušević and S. Žumer, *Knot theory realizations in nematic colloids*, Proc. Natl. Acad. Sci. **112**, 1675 (2015), IF=9.737.
- A. Nych, Jun-ichi Fukuda, U. Ognysta, S. Žumer, and I. Mušević, *Spontaneous formation and dynamics of half-skyrmions in a chiral liquid-crystal film*, Nat. Phys. **13**, 1215 (2017). doi:10.1038/nphys4245. IF = 20.603.