# BASIT YAMEEN (Ph.D.)

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Associate Professor & Department Chair

Department of Chemistry and Chemical Engineering

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## EDUCATION

# Max Planck Institute for Polymer Research Mainz, Germany

**Johannes – Gutenberg University** 2004-2008

PhD Chemistry (Organic and Polymer)

## EXPERIENCE

# SBA School of Science and Engineering, LUMS Lahore, Pakistan

Associate Professor & Department Chair (Chair since January 2017) 2016-to date

**Brigham and Women’s Hospital** Boston, MA USA

**Harvard Medical School** 2013-2016

**Laboratory of Nanomedicine and Biomaterials**

Postdoctoral Research Fellow promoted to junior Faculty position (Instructor)

**David H. Koch Institute for Integrative Cancer Research**

**Massachusetts Institute of Technology (MIT)**

Research Affiliate

* Synthesis of ligand conjugated drug molecules and encapsulation into FDA approved polymer nanoparticles (NPs).
* NPs (polymer, hybrid, Fe3O4, silica, Au) for reduction responsive drug delivery. Functionally adaptable and specific to differential physiopathological nature of diseases.
* Develop control over the morphology of self-assembled peptide (anti-VEGF) nanostructures.

**Karlsruhe Institute of Technology** Karlsruhe, Germany

**Institute for Chemical Technology and Polymer Chemistry** 2012-2013

**Alexander von Humboldt Foundation Fellowship (Postdoc)**

* Developed synthetic routes to poly(3-hexylthiophene) (P3HT) bearing cyclopentadienyl (Cp) end and pendant groups suitable for Diels-Alder (DA) click ligations.
* Conjugated P3HT bearing Cp end groups to carbon nanotubes (CNTs), to maleimide functionalized surfaces for P3HT polymer brushes, and to polystyrene with dienophile end groups for block copolymers.
* Conjugated P3HT with pendant groups to fullerenes and studied fluorescence quenching.
* Developed plasma activation based surface modification of polymer films for controlled cell adhesion.

# SBA School of Science and Engineering, LUMS Lahore, Pakistan

Assistant Professor 2010-2014

* Developed and delivered new Organic Chemistry, Polymer Chemistry, and Organic Spectroscopy courses (theory and lab) for undergraduate (LUMS) and graduate students (GIK).
* Independently designed research projects, wrote grant applications, and worked as Lead Scientist/PI for two externally funded research projects (value: ~120,000 US $).
* Supervised BS, MPhil, and Ph.D. research students from LUMS as well as from other Universities in Lahore. Mentored research staff in day-to-day job and in progress of their careers.

**GIK Institute of Engineering Sciences and Technology** KPK, Pakistan

Assistant Professor 2009-2010

# Max Planck Institute for Polymer Research Mainz, Germany

Ph.D. 2004-2009

* Discovered a novel combination of polymer brushes and nanoporous materials for fabrication of smart materials. Stimuli (pH, temperature) responsive ion conducing channels and proton conducting membranes. Application: Fuel cells.
* Synthesized a novel azide-groups functionalized azo initiator for a facile synthesis of polymers with azide end groups.
* Synthesized highly processable liquid oligoarylethers based cyanate ester resins and studied thermal and mechanical properties of the resulting thermosets.
* Developed wet-chemical surface modification for grafting polymer brushes to polyetheretherketone (PEEK) surface, and plasma activation of PEEK surface for adhesion improvement.
* Established a substrate independent plasma polymerization methodology for fabrication of polymer brushes.

## RESEARCH EXPERIENCE & INSTEREST

* Polymer and surface chemistry: Soft materials and interfaces
* Polymer thin films, membranes, and nanocomposites.
* Polymers/Carbon nanomaterials (carbon nanotubes-CNTs, fullerenes) based hybrid materials via modular ligation strategies.
* Fullerene based materials for solar cells and biomedical imaging applications.
* Design and synthesis of functional macromolecules for addressing energy, health and environment related challenges.
* Polymer chemistry at the interface of polymeric and non-polymeric porous membranes for fabrication of functional and stimuli responsive hybrid materials. Target Applications: Controlled transport and release of material across the membrane, bio-sensing, and fuel cells.
* Functional nanomaterials derived from peptide supramolecular assemblies.
* https://scholar.google.com/citations?hl=en&user=QuTK7fgAAAAJ

**TECHNICAL SKILLS LIST**

**Organic and Polymer Synthesis Skills**

* Functional monomers and their polymerizations.
* Controlled (RAFT, ATRP) and conventional radical polymerization techniques.
* Polycondensation for synthesis of (stimuli responsive) polyesters.
* Ring opening polymerization (ROP) of lactides and glycolides for synthesis of PLGA and PLA based homo and block copolymers.
* “*Click*” ligation strategies (azide-alkype, DA, thiol-ene) for synthesis of polymers with controlled architecture physical properties.
* Polymer brushes fabrication via “*grafting from*” (surface initiated polymerizations) and “*grafting to*” (coupling reactions) strategies.
* π-Conjugated polymers (P3HT) via Grignard Metathesis (GRIM) Polymerization with defined end and pendant group control.

**Nanotechnology Skills**

* Fe3O4 nanoparticles, SiO2 nanoparticles, mesoporous SiO2 nanoparticles, Au-nanorods nanoparticles synthesis and surface functionalization.
* Carbon nanotubes (CNTs) and fullerene functionalization.
* Functional nano/macroporous hybrid membranes.
* Polymer and hybrid nanoparticles via nanoprecipitaion, single emulsion, and double emulsion.

**Characterization Techniques**

* Structure elucidation: Gel permeation chromatography (GPC), spectroscopic techniques: (1H and 13C-NMR, UV-Visible, FTIR), mass spectrometry (ESI-MS, MALDI-ToF MS).
* Thermal and mechanical properties: Thermogravimetric analysis (TGA), differential scanning calorimetry (DSC).
* Surface chemical characterization and materials morphology: Water contact angle goniometry, X-ray photoelectron spectroscopy (XPS), atomic force microscopy (AFM), Kelvin probe force microscopy, transmission electron microscopy (TEM), and scanning electron microscopy (SEM).

**Scientific Writing and Communication Skills**

* Authored over 50 articles in peer reviewed journals and as book chapter contributions. List appended.
* Delivered invited lectures at several international forums.
* Experienced in grant proposal writing.

**HONORS and AWARDS**

* **Gold Medal and Academic Role of Honor** for first position in M.Sc. Chemistry, Government College University, Lahore, Pakistan. (1998-2000).
* “*President of Dunnicliff Chemical Society*” of Government College University Lahore, Pakistan (1999-2000).
* **Alexander von Humboldt Fellowship** for postdoctoral research at KIT, Germany.
* Recognized as **Asian Rising Star** 2013 by The Asian Chemical Congress (ACC), a biennial conference established by the Federation of Asian Chemical Societies (FACS) comprised 28 country and territory members in the Asia Pacific region.
* Dr. Atta ur Rahman **Gold Medal** (2012) in Chemistry as a recognition of research performance over last 5 years.
* Recognized by the Polymer Chemistry journal of Royal Society of Chemistry as an **Emerging Investigator** (2014-2015) whose work has been recommended by the editorial board as having the potential to influence future directions in polymer science.

**RESEARCH GRANTS**

**1) Project title:** Development of protogenic groups containing polymer brush modified additives to improve the proton conductivity of polyelectrolyte membranes for fuel cell application

Funding Agency and Program: Higher Education Commission of Pakistan. NRPU.

Grant amount: PKR 6 million

**2) Project title:** A combination of magnetic nanoparticles and polymer brushes: Towards development of magnetically assisted, high capacity and efficient metal ion contaminated water remediation adsorbent.

Funding Agency and Program: Higher Education Commission of Pakistan. NRPU.

Grant amount: PKR 6 million.

**3)** **Project title:** Summer research Internship in Science and Engineering (RISE) for Young Community – RISE Community Duration: 1 months

Funding Agency and Program: Higher Education Commission of Pakistan through Social integration outreach program.

Award amount: PKR. 200,000 (HEC) and 200,000 (LUMS).

**4) Project title:** Solar cell performance enhancement by polymer side chain engineering

Funding Agency and Program: Higher Education Commission of Pakistan. NRPU

Award amount: PKR 12.066958 million

**5) Project title:** Transforming biomass ash residues into commercializable products

Funding Agency and Program: Higher Education Commission of Pakistan and Bulleh Shah Packaging (Pvt). Technology Development Fund.

Award amount: PKR 18.474 million

**6) Project title:** Building from scratch: How nanomaterials can help resolve membrane scaffold geometry and function

Funding Agency and Program: Human Frontier Science Program. Young Investigator Award

Award amount: PKR over 30 million

**EDITORIAL SERVICES**

* Editorial Board Member of ***Nature Scientific Reports*** a Journal of Nature Publishing Group.
* Reviewer for several leading chemistry and materials science journals of leading publishing groups.

**PUBLICATIONS and DISSEMINATION of RESARCH FINDINGS**

**Journal Articles**

1. Sana Nayab, Humaira Baig, Abdul Ghaffar, Eylül Tuncel, Zehra Oluz, Hatice Duran, Basit Yameen, “*Silica based inorganic–organic hybrid materials for the adsorptive removal of chromium*” *RSC Advances*, **2018**, ***8***, 23963-23972.
2. Sana Nayab, Vanessa Trouillet,  Hartmut Gliemann,Silvana Hurrle,  Peter G. Weidler,  Saadia Rashid Tariq,  Anja S. Goldmann, Christopher Barner-Kowollik  and  Basit Yameen, “*Chemically reprogrammable metal organic frameworks (MOFs) based on Diels–Alder chemistry*” *Chemical Communications*, **2017** ***53***, 11461-11464.
3. Eduardo Fuentes, Basit Yameen, Soung- Jae Bong, Carolina Salvador-Morales, Ivan Palomo, Cristian Vilos, “*Antiplatelet effect of differentially charged PEGylated lipid-polymer nanoparticles*” *Nanomedicine: Nanotechnology, Biology and Medicine*, **2017** *13* (3), 1089-1094.
4. Muhammad Faizan Nazar, Muhammad Atif Saleem, Sana Nawaz Bajwa, Basit Yameen, Muhammad Ashfaq, Muhammad Nadeem Zafar, and Muhammad Zubair, “*Encapsulation of Antibiotic Levofloxacin in Biocompatible Microemulsion Formulation: Insights from Microstructure Analysis*” J. Phys. Chem. B, **2017**, *121* (2), 437-443.
5. Mauricio P Pinto, Maximiliano Arce, Basit Yameen & Cristian Vilos, “*Targeted brain delivery nanoparticles for malignant gliomas*” *Nanomedicine*, **2017**, *12* (1), 59-72.
6. Won Il Choi, Basit Yameen, Cristian Vilos, Abhishek Sahu, Seong-Min Jo, Daekyung Sung, Giyoong Tae, “*Optimization of fibrin gelation for enhanced cell seeding and proliferation in regenerative medicine applications*” *Polymers for Advanced Technologies*, **2017**, *28* (1), 124-129.
7. Nazila Kamaly, Basit Yameen, Jun Wu, Omid Farokhzad, “*Biodegradable Polymeric Nanomedicines: Mechanisms of Controlling Drug Releas*e” *Chemical Reviews,* **2016,** *116* (4), 2602-2663. Equal first author contribution.
8. Agustín S Picco, Basit Yameen, Wolfgang Knoll, Marcelo R Ceolín, Omar Azzaroni, “*Temperature-driven self-assembly of self-limiting uniform supraparticles from non-uniform unimolecular micelles*”, *Journal of Colloid and Interface Science*, **2016**, *471*, 71-75.
9. Eva Blasco, Basit Yameen, Alexander S. Quick, Peter Krolla-Sidenstein, Alexander Welle, Martin Wegener, and Christopher Barner-Kowollik, “*Designing π-Conjugated Polymeric Nano- and Microstructures via Light Induced Chemistry*”, *Macromolecules*, **2015**, *48* (24), 8718–8728.
10. Jun Wu, Lili Zhao, Xiaoding Xu, Nicolas Bertrand, Won II Choi, Basit Yameen, Jinjun Shi, Vishva Shah, Matthew Mulvale, James L. MacLean, Omid C. Farokhzad, “*Hydrophobic Cysteine Poly(disulfide)-based Redox-Hypersensitive Nanoparticle Platform for Cancer Theranostics*”, ***Angewandte Chemie International Edition****,* **2015**,127 *(32)*, 9350-9355.
11. Basit Yameen, Cristian Vilos, Won I. Choi, Andrew Whyte, Jining Huang, Lori Pollit, and Omid C. Farokhzad, “*Drug delivery nanocarriers from fully degradable PEG-conjugated polyester with reduction-responsive backbone*”, ***Chemistry-A European Journal***, **2015**, 21 *(32)*, 11325-11329.
12. Aleeza Farrukh, Fatima Ashraf, Anke Kaltbeitzel, Xiao Ling, Manfred Wagner, Hatice Duran, Abdul Ghaffar, Habib ur Rehman, Sapun H. Parekh, Katrin F. Domke, and Basit Yameen\*, “*Polymer brushes functionalized SiO2 nanoparticles based Nafion nanocomposites: A novel avenue to low-humidity proton conducting membranes*”, ***Polymer Chemistry,*** **2015**, **6**, 5782-5789.
13. Astrid Hirschbiel,Simone Geyer,Basit Yameen, Alexander Welle, Stefan Giselbrecht, Steffen Scholpp, Guillaume Delaittre, Christopher Barner-Kowollik, “*Photolithographic Patterning of 3D-Formed Polycarbonate Films for Targeted Cell Guiding*", ***Advanced Materials***, **2015**, 27 *(16)*, 2621-2626.
14. Won Il Choi, Nazila Kamaly, Lorena Riol-Blanco, In-Hyun Lee, Jun Wu, Archana Swami, Cristian Vilos, Basit Yameen, Mikyung Yu, Jinjun Shi, Ira Tabas, Ulrich H. von Andrian, Sangyong Jon, and Omid C. Farokhzad, “[*A Solvent-Free Thermosponge Nanoparticle Platform for Efficient Delivery of Labile Proteins*](http://pubs.acs.org/doi/abs/10.1021/nl502994y)” **Nano Letters**, **2014**, 14 *(11)*, 6449–6455.
15. Basit Yameen, Won Il Choi, Cristian Vilos, Archana Swami, Jinjun Shi, Omid Farokhzad, “*Insight into nanoparticle cellular uptake and intracellular targeting*”, ***Journal of Controlled Release***, **2014**, 28 *(190)* 485-499.
16. Basit Yameen, Tanja Puerckhauer, Jens Ludwig, Ishtiaq Ahmed, Ozcan Altintas, Ljiljana Fruk, Alexander Colsmann, Christopher Barner-Kowollik, “***π-****Conjugated Polymer-Fullerenes Covalent-hybrids via Ambient Conditions Diels–Alder Ligation*” ***Small***, **2014** 10, 3091–3098.
17. Aleeza Farrukh, Attia Akram, Abdul Ghaffar, Eylül Tuncel, Zehra Oluz, Hatice Duran, Habib ur Rehman and Basit Yameen\*, “*Surface functionalized silica gel adsorbents for efficient remediation of cationic dyes*” ***IUPAC Pure and Applied Chemistry***, **2014** 86 *(7)*, 1177–1188.
18. Sana Nayab, Aleeza Farrukh, Zehra Oluz,Eylul Tuncel,Saadia Rashid Tariq, Habib ur Rahman, Hatice Duran, Katrin Kirchhoff, Basit Yameen\*, “*Design and Fabrication of Branched Polyamine Functionalized Mesoporous Silica: An Efficient Absorbent for Water Remediation***” *ACS Applied Materials & Interfaces****,* **2014**,  6, 4408–4417.
19. Ahmed Yousaf, Aleeza Farrukh, Zehra Oluz, Eylul Tuncel, Sema Dogan, Turgay Tekinay, Hatice Duran, Basit Yameen\*, “*UV-Light Assisted Single Step Route to Functional PEEK Surfaces*” ***Reactive and Functional Polymers***, **2014**,83, 70–75.
20. Hatice Duran,   Basit Yameen,   Markus Geuss,   Michael Kappl,  Martin Steinhart and   Wolfgang Knoll, “*Enhanced Interfacial Rigidity of 1D Thermoset Nanostructures by Interface-Induced Liquid Crystallinity*”, ***Journal of Materials Chemistry C***, **2013**, **1**, 7758-7765.
21. Basit Yameen, Cesar Rodriguez-Emmenegger, Corinna M. Preuss, Ognen Pop-Georgievski, Elisseos Verveniotis, Vanessa Trouillet, Bohuslav Rezek and Christopher Barner-Kowollik, “*A facile avenue to conductive polymer brushes via cyclopentadiene-maleimide Diels–Alder Ligation*”, ***Chemical Communications***, **2013**, **49**, 8623-8625.
22. Cesar Rodriguez-Emmenegger, Corinna M. Preuss, Basit Yameen, Ognen Pop-Georgievski, Michael Bachmann, Jan O. Mueller, Michael Bruns, Anja S. Goldmann, Martin Bastmeyer and Christopher Barner-Kowollik, *“Controlled Cell Adhesion on Poly(dopamine) Interfaces Photopatterned with Non-Fouling Brushes”*, ***Advanced Materials***, **2013**, 25 *(42)*, 6123-6127.
23. Basit Yameen, Cesar Rodriguez-Emmenegger, Ishtiaq Ahmed, Corinna M. Preuss, Christoph J. Dürr, Nicolas Zydziak, Vanessa Trouillet, Ljiljana Fruk, Christopher Barner-Kowollik , *“A facile one-pot route to poly(carboxybetaine acrylamide) functionalized SWCNTs”,* ***Chemical Communications*** **2013**, **49**, 6734–6736.
24. Basit Yameen\*, Aleeza Farrukh, “*Polymer Brushes – Promises and Challenges*” **2013** Invited Review: ***Chemistry – An Asian Journal*** **2013**, 8 *(8)*, 1736-1753.
25. Nicolas Zydziak, Basit Yameen\*, Christopher Barner-Kowollik\*, “*Diels-Alder Reactions for Carbon Materials Synthesis and Functionalization*”, ***Polymer Chemistry***, **2013**, **4**, 4072-4086.
26. Basit Yameen, Nicolas Zydziak, Steffen M. Weidner, Michael Bruns, Christopher Barner-Kowollik, “*Conducting Polymer/SWCNTs Modular Hybrid Materials via Diels-Alder Ligation*” ***Macromolecules*** **2013**, 46 *(7)*, 2606–2615.
27. Aleeza Farrukh, Attia Akram, Sara Hanif, Almas Hamid, Abdul Ghaffar, Hatice Duran, Basit Yameen\*, *“Design of Polymer Brush Grafted Magnetic Nanoparticles for Highly Efficient Water Remediation*”, ***ACS Applied Materials & Interfaces***, **2013**, 5 *(9)*, 3784–3793.
28. Hatice Duran\*,Basit Yameen\*, et al. “*Surface-Initiated Ring Opening Polymerization of N-carboxy Anhydride of Benzyl-L-Glutamate Monomers on Soft Flexible Substrates*” ***Reactive and Functional Polymers* 2013**, 73 *(3)*, 606–612.
29. Samina Mehnaz, Rahman Saleem, Basit Yameen, et al. “*Lahorenoic acids A- C, ortho-dialkyl-substituted aromatic acids from the biocontrol strain Pseudomonas aurantiaca PB-St2***” *Journal of Natural Products* 2013**, 76 *(2)*, 135–141.
30. Annette Brunsen, Carolina Díaz, Lía I. Pietrasanta, Basit Yameen, Marcelo Ceolín, Galo J. A. A. Soler-Illia, and Omar Azzaroni, “*Proton and Calcium-Gated Ionic Mesochannels: Phosphate-Bearing Polymer Brushes Hosted in Mesoporous Thin Films As Biomimetic Interfacial Architectures*” ***Langmuir*** **2012**, 28 *(7)*, 3583–3592.
31. Antonis Gitsas, Thomas D. Lazzara, Basit Yameen, Martin Steinhart, Wolfgang Knoll, Hatice Duran, *“Designing polymeric nanorod arrays for optical waveguide-based biosensors”*, ***Physica Status Solidi C* 2011**, 8, 3179-3182. (**Cover page**)
32. Basit Yameen, Hadayat Ullah Khan, Wolfgang Knoll, Renate Foerch, Ulrich Jonas, *“Surface Initiated Polymerization on Pulsed Plasma Deposited Polyallylamine: A Polymer Substrate-Independent Strategy to Soft Surfaces with Polymer Brushes”*, ***Macromolecular Rapid Communications*** **2011**, 32, 1735-1740.
33. Wolfgang Knoll, Anne-Marie Caminade, Kookheon Char, Hatice Duran, Chuan Liang Feng, Antonis Gitsas, Dong Ha Kim, Aaron Lau, Thomas D. Lazzara, Jean-Pierre Majoral, Martin Steinhart, Basit Yameen, X. H. Zhong, *“Nanostructuring Polymeric Materials by Templating Strategies”,* ***Small***, **2011**, 7 *(10)*, 1384–1391.
34. Agustίn S. Picco, Basit Yameen, Omar Azzaroni and Marcelo Ceolίn, “*Thermoreversible formation and negative thermal expansion of supramacromolecular assemblies of unimolecular micelles in solution*”, ***Chemical Communications*, 2011**, 47, 3802–3804.
35. Alejandra Calvo, M. Cecilia Fuertes, Basit Yameen, Federico J. Williams, Omar Azzaroni, and Galo J.A.A. Soler-Illia. “*Nanochemistry in Confined Environments: Polyelectrolyte Brush-Assisted Synthesis of Gold Nanoparticles inside Ordered Mesoporous Thin Films*”, ***Langmuir***, **2010**, 26 *(8)*, 5559-5567.
36. Basit Yameen, Anke Kaltbeitzel, Gunnar Glasser, Andreas Langner, Frank Müller, Ulrich Gösele, Wolfgang Knolland Omar Azzaroni. “*Construction of Hybrid Polymer-Silicon Proton Conducting Membranes via a Pore-Filling Surface-Initiated Polymerization Approach*” ***ACS Applied Materials & Interfaces***, **2010**, 2 *(1)*, 279-287. (**Cover page**).
37. Basit Yameen, Mubarak Ali, Marta Álvarez, Reinhard Neumann,
Wolfgang Ensinger, Wolfgang Knoll and Omar Azzaroni. “*A Facile Route for the Preparation of Azide-Terminated Polymers."Clicking" Polyelectrolyte Brushes on Planar Surfaces and Nanochannels*”, ***Polymer Chemistry***, **2010**, 1, 183-192.
38. **Basit Yameen, Mubarak Ali, Reinhard Neumann, Wolfgang Ensinger, Wolfgang Knoll and Omar Azzaroni. “*Proton-regulated rectified ionic transport through solid-state conical nanopores modified with phosphate-bearing polymer brushes*”, *Chemical Communications*, 2010**, 46, 1908-1910.
39. Mubarak Ali, Basit Yameen, Javier Cervera, Patricio Ramírez, Reinhard Neumann, Wolfgang Ensinger, Wolfgang Knoll and Omar Azzaroni, “*Layer-by-Layer Assembly of Polyelectrolytes into Ionic Current Rectifying Solid-State Nanopores: Insights from Theory and Experiment*”, ***Journal of the American Chemical Society****,* **2010***,* 132 *(24)*, 8338-8348.
40. Antonis Gitsas, Basit Yameen, Thomas Dominic Lazzara, Martin Steinhart, Hatice Duran and Wolfgang Knoll, “*Polycyanurate Nanorod Arrays for Optical-Waveguide-based Biosensing*”, ***Nano Letters***, **2010**, 10 *(6)*, 2173-2177.
41. Alejandra Calvo, Basit Yameen, Federico J. Williams, Omar Azzaroni and Galo J. A. A. Soler-Illia, “*Facile molecular design of hybrid functional assemblies with controllable transport properties: mesoporous films meet polyelectrolyte brushes*”, ***Chemical Communications***, **2009**,18, 2553-2555.
42. Alejandra Calvo, Basit Yameen, Federico J. Williams, Galo J. A. A. Soler-Illia, Omar Azzaroni “*Mesoporous Films and Polymer Brushes Helping Each Other To Modulate Ionic Transport in Nanoconfined Environments. An Interesting Example of Synergism in Functional Hybrid Assemblies”*, ***Journal of the American Chemical Society***, **2009**, 131 *(31)*, 10866-10868.
43. Basit Yameen\*, Marta Alvarez, Omar Azzaroni, Ulrich Jonas, Wolgang Knoll; "*Polyetheretherketone (PEEK) Surface Functionalization via Surface Initiated Atom Transfer Radical Polymerization*", ***Langmuir*****2009**, 25 *(11)*, 6214-6220.
44. Basit Yameen, Anke Kaltbeitzel, Andreas Langer, Frank Müller, Ulrich Gösele, Wolfgang Knoll, Omar Azzaroni, **“*Highly Proton-Conducting Self-Humidifying Microchannels Generated by Copolymer Brushes on a Scaffold*”, *Angewandte Chemie-International Edition***, **2009**, 48 *(17)*, 3124-3128.
45. Basit Yameen, Mubarak Ali, Reinhard Neumann, Wolfgang Ensinger, Wolfgang Knoll, Omar Azzaroni, **“*Ionic Transport Through Single Solid-State Nanopores Controlled with Thermally Nanoactuated Macromolecular Gates*”, *Small*,2009, 5 *(11)*,** 1287-1291.
46. Basit Yameen, Mubarak Ali, Reinhard Neumann, Wolfgang Ensinger, Wolfgang Knoll, Omar Azzaroni, “*Single Conical Nanopores Displaying pH-Tunable Rectifying Characteristics. Manipulating Ionic Transport With Zwitterionic Polymer Brushes*”,***Journal of the American Chemical Society***, 2009, 131 *(6)*, 2070-2071.
47. Basit Yameen, Mubarak Ali, Reinhard Neumann, Wolfgang Ensinger, Wolfgang Knoll, Omar Azzaroni, “*Synthetic Proton-Gated Ion Channels via Single Solid-State Nanochannels Modified with Responsive Polymer Brushes*”, ***Nano Letters***, **2009**, 9 *(7)*, 2788-2793.
48. Omar Azzaroni, Marta Álvarez. A.I. Abou-Kandil, Basit Yameen, W. Knoll, “*Tuning the Unidirectional Electron Transfer at Interfaces with Multilayered Redox-Active Supramolecular Bionanoassemblies”,* ***Advanced Functional Materials***, **2008**, 18, 3487-3496.
49. Omar Azzaroni, Marta Álvarez, Mónica Mir, Basit Yameen, Wolfgang Knoll, “*Redox Mediation and Electron Transfer through Supramolecular Arrays of Ferrocene-labeled Streptavidin on Biotinylated Gold Electrodes”,* ***Journal of Physical Chemistry C***, **2008**, 112 *(40)*, 15850-15859.
50. Mubarak Ali, Basit Yameen, Reinhard Neumann, Wolfgang Ensinger, Wolfgang Knoll, and Omar Azzaroni, *“Biosensing and Supramolecular Bioconjugation in Single Conical Polymer Nanochannels. Facile Incorporation of Biorecognition Elements into Nanoconfined Geometries*”, ***Journal of the American Chemical Society***, **2008**, 130 *(48)*, 16351-16357.
51. Basit Yameen, Anke Kaltbeitzel, Andreas Langner, Hatice Duran, Frank Müller, Ulrich Gösele, Omar Azzaroni,and Wolfgang Knoll; "*Facile Large-Scale Fabrication of Proton Conducting Channels*", ***Journal of the American Chemical Society***, **2008**, 30 *(39)*, 13140-13144.
52. Omar Azzaroni, Basit Yameen and Wolfgang Knoll, “*Effect of the Electrostatic Microenvironment on the Observed Redox Potential of Electroactive Supramolecular Bioconjugates*”, ***Physical Chemistry Chemical Physics****”*, **2008**, 10 *(46)*, 7031-7038
53. Basit Yameen, Hatice Duran, Andreas Best, Ulrich Jonas, Martin Steinhart, Wolfgang Knoll; **“*Polycyanurate Thermoset Networks with High Thermal, Mechanical, and Hydrolytic Stability Based on Liquid Multifunctional Cyanate Ester Monomers with Bisphenol A and AF Units”,* *Macromolecular Chemistry and Physics***, **2008**, 209 *(16)*, 1673–1685. (**Cover page**).

**Invited Book Chapters**

1. B. Yameen, M. Tamm, N. Vogel, A. Echler, R. Förch, U. Jonas, W. Knoll; "*Cyanate Ester Resins as Thermally Stable Adhesives for Polyether Ether Ketone*" in "*Surface Design: Applications in Bioscience and Nanotechnology*", Editors: R. Förch, H. Schönherr, A.T.A. Jenkins; Wiley-VCH, Weinheim **2009**, 145-164.
2. A. Kaltbeitzel, F. Jiang, G. Titvinidize, B. Yameen, W. H. Meyer, “*Proton Conductivity of Polymer Electrolyte Membranes: A Survey of Concepts at the MPI-P*” in“*Electroactive Polymers, Materials and Devices*”, Editors: S.A. Hashmi, Amita Chandra, Amreesh Chandra, Series Editor: S. Chandra, Vol III. Rajiv Beri for Macmillan Publishers India Ltd. **2009**, *3*, 104-113, P-09-190.
3. B. Yameen, J. Wu, C. Vilos, A. Whyte, L. Pollit, O. Farokhzad, “*Stimuli-responsive nanotheranostics*”, Book title: Nanotheranostics for personalized medicine. Editors: Prof. P. Couvreur and Prof. S. Mura. Publishers: World Scientific Publishing Singapore and Imperial College Press London, **2016**, 267-296.

**Invited/Conference Lectures**

1. **Invited lecture** 1st International Conference on Separation Processes (ICSP 2017), COMSATS Institute of Information Technology, Venue Nishat Hotel, Lahore. April 26-27, 2017.
2. **Invited lecture** “Building from scratch: How nanomaterials can help resolve membrace scaffold geometry and function” Department of Pure and Applied Chemistry, University of Strathclyde, Glasgow, UK. October 9-10, 2017.
3. **Invited lecture** 3rd International Conference on Biotechnology (ICB): Challenges and Opportunities in Pakistan, Faculty of Life & Health Sciences & ORIC, University of South Asia, Pakistan. February 8-9, 2017.
4. **Invited lecture** at the Department of Physical Chemistry of Polymers, Max Planck Institute for Polymer Research, Mainz, Germany. June 24, 2014.
5. **Invited Lecture** at the School of Chemical and Physical Sciences, and Flinders Center for NanoScale Science and Technology at the Flinders University, Australia. May 22, 2014.
6. **Invited lecture** at a Symposium on “*Soft Control - Switching Surface Properties with Responsive Polymers at Interfaces*” September 22-24, 2013 (Darmstadt, Germany).
7. **Invited lecture** at Macromolecular Chemistry Department, University of Siegen. GDCh lecture series. February 28, 2013.
8. **Invited Speaker** in the session dedicated to Asian Rising Stars at 15th Chemical Congress in Singapore, August 20-23, 2013.
9. **Invited lecture** at Macromolecular Chemistry Department, University of Hamburg, March, 2013.
10. **Invited lecture** (Nanomedicine) at the National Symposium on Frontiers in Nanotechnology, held at National University of Science and Technology (NUST), Islamabad, Pakistan on May 19, 2012.
11. **Invited Lecture** on “*Polymer brushes derived function materials*” at Max Planck Institute for Polymer Research, Mainz, Germany. August 15, 2011.