December 24, 2013
Volume 46
Number 24

Macromolecules

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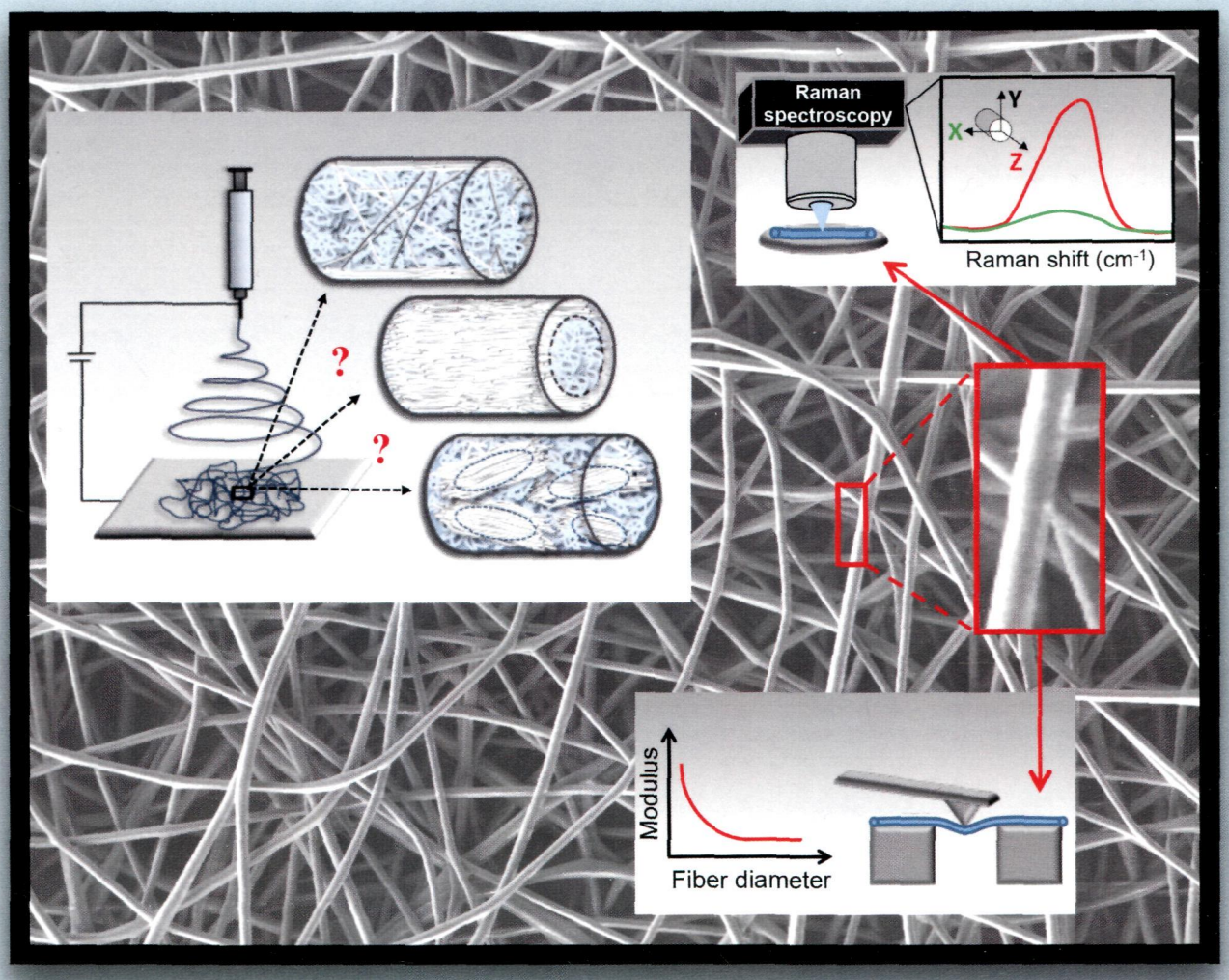

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DECEMBER 24, 2013

VOLUME 46 ISSUE 24

MAMOBX 46(24) 9473–9854 (2013)

ISSN 0024-9297

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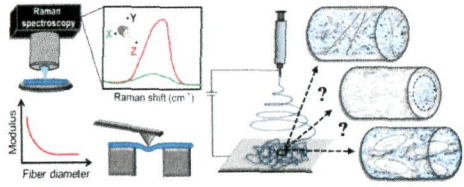
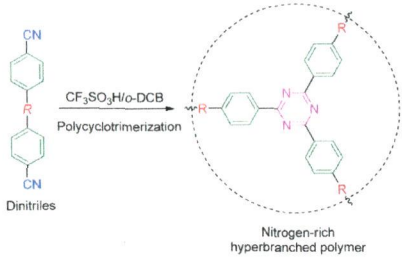
ON THE COVER: Molecular Orientation in Electrospun Fibers: From Mats to Single Fibers. Electrospinning is widely used to prepare polymer nanofibers. Single fiber AFM studies have recently transformed our vision of electrospun fibers by revealing an exponential increase of their mechanical properties with decreasing diameter. Several models suggest that molecular orientation is critical in controlling these and other properties. A main challenge is thus to characterize the structure of individual fibers, a difficult task due to their intrinsically small size. Single fiber techniques, such as Raman spectroscopy, help uncover the structural origin of the intriguing properties of electrospun fibers. See page 9473.

Perspective

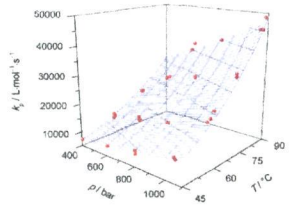


Articles



9507 dx.doi.org/10.1021/ma401830a

Propagation Rate Coefficients for Vinylidene Fluoride Homopolymerizations
Rebekka Siegmann, Marco Drache, and Sabine Beuermann*

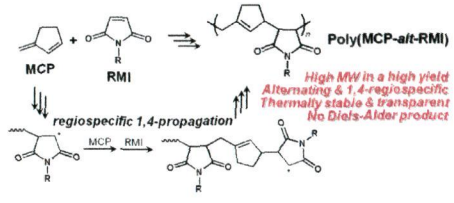


9515 S dx.doi.org/10.1021/ma401964e

Postelectrospinning "Click" Modification of Degradable Amino Acid-Based Poly(ester urea) Nanofibers
Fei Lin, Jiayi Yu, Wen Tang, Jukuan Zheng, Sibai Xie, and Matthew L. Becker*

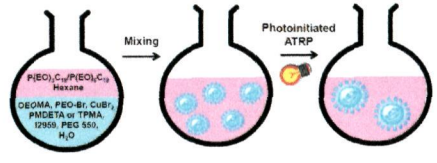
9526 S dx.doi.org/10.1021/ma4020092

Controlled Radical Polymerization of 3-Methylenecyclopentene with N-Substituted Maleimides To Yield Highly Alternating *and Regiospecific Copolymers*
Daisuke Yamamoto and Akikazu Matsumoto*



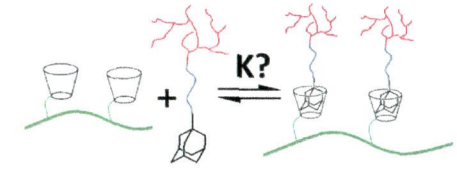
9537 dx.doi.org/10.1021/ma402058a

Photoinitiated ATRP in Inverse Microemulsion
Mustafa Ciftci, Mehmet Atilla Tasdelen, Wenwen Li, Krzysztof Matyjaszewski, and Yusuf Yagci*



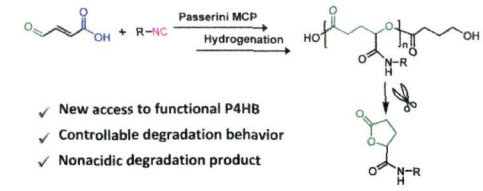
9544 S dx.doi.org/10.1021/ma402081h

Supramolecular Linear-*g*-Hyperbranched Graft Polymers: Topology and Binding Strength of Hyperbranched Side Chains
Christian Moers, Lutz Nuhn, Marcel Wissel, René Stangenberg, Mihail Mondeshki, Elena Berger-Nicoletti, Anja Thomas, David Schaeffel, Kaloian Koynov, Markus Klapper, Rudolf Zentel, and Holger Frey*



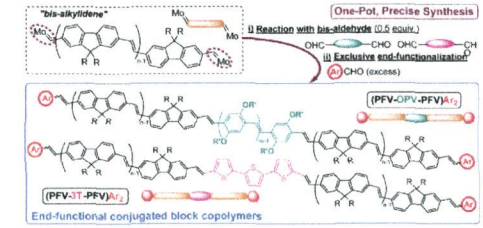
9554 S dx.doi.org/10.1021/ma402191r

Chemical Synthesis of Functional Poly(4-hydroxybutyrate) with Controlled Degradation via Intramolecular Cyclization
Li-Jing Zhang, Xin-Xing Deng, Fu-Sheng Du, and Zi-Chen Li*



9563 S dx.doi.org/10.1021/ma4022554

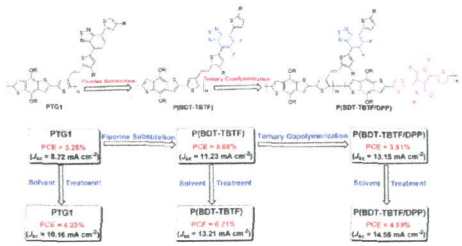
Precise One-Pot Synthesis of End-Functionalized Conjugated Multi-Block Copolymers via Combined Olefin Metathesis and Wittig-type Coupling
Kotohiro Nomura,* Tahmina Haque, Taira Onuma, Fatin Hajjaj, Motoko S. Asano, and Akiko Inagaki



9575 S dx.doi.org/10.1021/ma401886a

Enhancing Photovoltaic Performance of Copolymers Containing Thiophene Unit with D–A Conjugated Side Chain by Rational Molecular Design

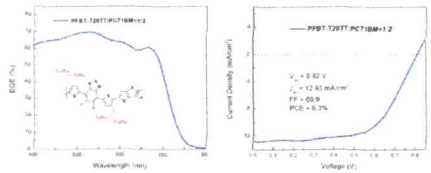
Ping Shen, Haijun Bin, Lu Xiao, and Yongfang Li*



9587 S dx.doi.org/10.1021/ma401709r

***Substituent Effects on Physical and Photovoltaic Properties of 5,6-Difluorobenzo[c][1,2,5]thiadiazole-Based D–A Polymers:* Toward a Donor Design for High Performance Polymer Solar Cells**

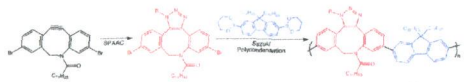
Yan Wang, Xin Xin, Yong Lu, Ting Xiao, Xiaofeng Xu, Ni Zhao, Xiao Hu,* Beng S. Ong,* and Siu Choon Ng*



9593 S dx.doi.org/10.1021/ma4021467

Synthesis of Conjugated Polymers Containing DIBAC-Derived Triazole Monomers

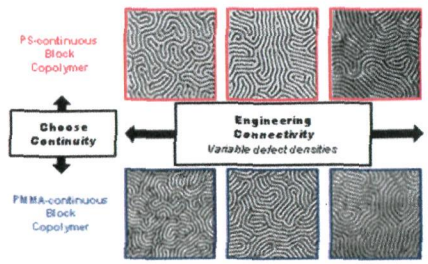
Ryan C. Chadwick, Vladimir Kardelis, Sophie Liogier, and Alex Adronov*



9599 S dx.doi.org/10.1021/ma401704m

Processing Approaches for the Defect Engineering of Lamellar-Forming Block Copolymers in Thin Films

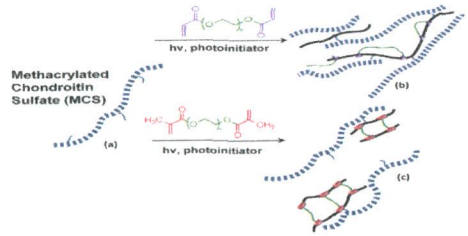
Ian P. Campbell, Soichi Hirokawa, and Mark P. Stoykovich*



9609 dx.doi.org/10.1021/ma401838h

Increasing Cross-Linking Efficiency of Methacrylated *Chondroitin Sulfate Hydrogels by Copolymerization with* Oligo(Ethylene Glycol) Diacrylates

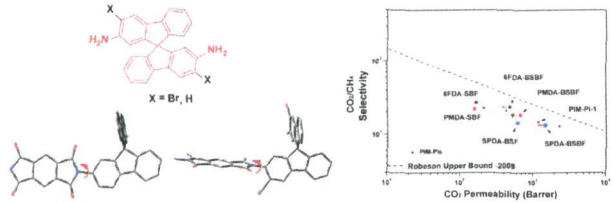
Anahita Khanlari, Michael S. Detamore, and Stevin H. Gehrke*



9618 S dx.doi.org/10.1021/ma402033z

Novel Spirobifluorene- and Dibromospirobifluorene-Based Polyimides of Intrinsic Microporosity for Gas Separation Applications

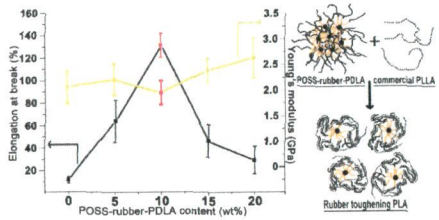
Xiaohua Ma, Octavio Salinas, Eric Litwiller, and Ingo Pinnau*



9625 S dx.doi.org/10.1021/ma4020615

Biodegradable "Core–Shell" Rubber Nanoparticles and Their Toughening of Poly(lactides)

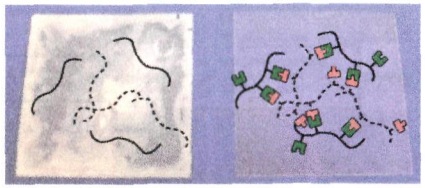
Yang Sun and Chaobin He*



9634 Ⓢ dx.doi.org/10.1021/ma402069b

Side-Chain Supramolecular Polymers Employing Conformer Independent Triple Hydrogen Bonding Arrays

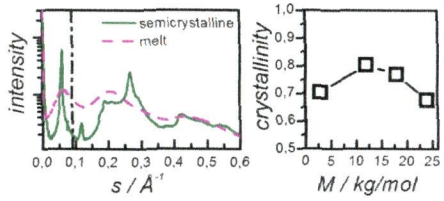
Adam Gooch, Natasha S. Murphy, Neil H. Thomson, and Andrew J. Wilson*



9642 Ⓢ dx.doi.org/10.1021/ma401946w

Determination of the Crystallinity of Semicrystalline Poly(3-hexylthiophene) by Means of Wide-Angle X-ray Scattering

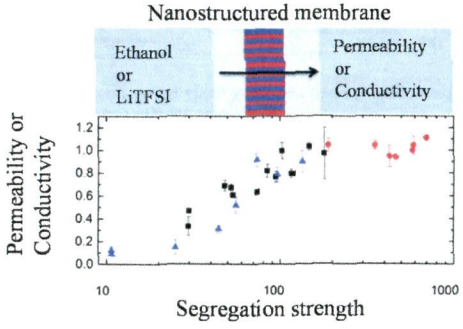
Jens Balko, Ruth H. Lohwasser, Michael Sommer, Mukundan Thelakkat, and Thomas Thurn-Albrecht*



9652 dx.doi.org/10.1021/ma401957s

Relationship between Segregation Strength and Permeability of Ethanol/Water Mixtures through Block Copolymer Membranes

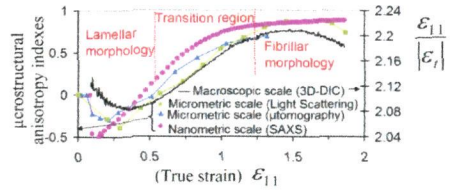
A. Evren Ozcam, Nikos Petzetakis, Skyler Silverman, Ashish K. Jha, and Nitash P. Balsara*



9659 dx.doi.org/10.1021/ma4019747

A Common Multiscale Feature of the Deformation Mechanisms of a Semicrystalline Polymer

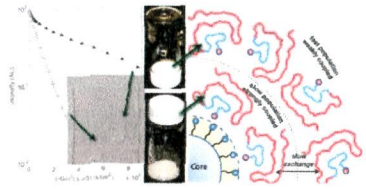
L. Farge,* S. André,* F. Meneau, J. Dillet, and C. Cunat



9669 Ⓢ dx.doi.org/10.1021/ma402002a

Hierarchical Canopy Dynamics of Electrolyte-Doped Nanoscale Ionic Materials

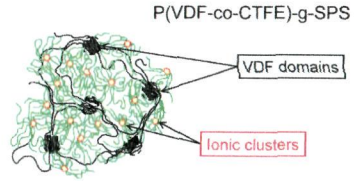
Michael L. Jespersen, Peter A. Mirau,* Ernst D. von Meerwall, Hilmar Koerner, Richard A. Vaia, Nikhil J. Fernandes, and Emmanuel P. Giannelis



9676 Ⓢ dx.doi.org/10.1021/ma402008b

Controlling Water Content and Proton Conductivity through Copolymer Morphology

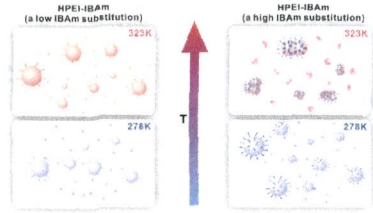
Rasoul Narimani, Ami C. C. Yang, Emily M. W. Tsang, Laurent Rubatat, Steven Holdcroft, and Barbara J. Frisken*



9688 Ⓢ dx.doi.org/10.1021/ma402095w

NMR Study of Thermoresponsive Hyperbranched Polymer in Aqueous Solution with Implication on the Phase Transition

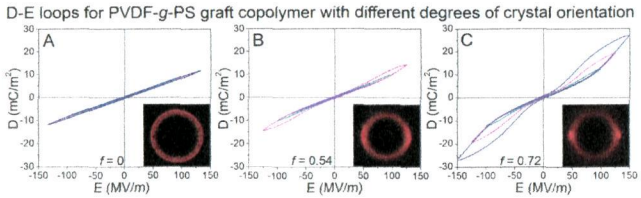
Songzi Jiang, Yefeng Yao,* Qun Chen, and Yu Chen*



9698 S dx.doi.org/10.1021/ma401660k

Crystal Orientation and Temperature Effects on Double Hysteresis Loop Behavior in a Poly(vinylidene fluoride-*co*-trifluoroethylene-*co*-chlorotrifluoroethylene)-*graft*-Polystyrene Graft Copolymer

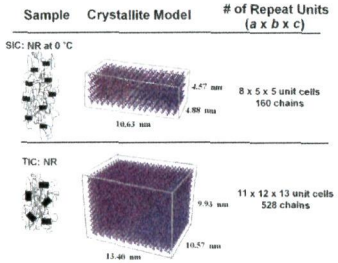
Lianyun Yang, Elshad Allahyarov, Fangxiao Guan, and Lei Zhu*



9712 dx.doi.org/10.1021/ma401812s

Crystal and Crystallites Structure of Natural Rubber and Peroxide-Vulcanized Natural Rubber by a Two-Dimensional Wide-Angle X-ray Diffraction Simulation Method. II. Strain-Induced Crystallization versus Temperature-Induced Crystallization

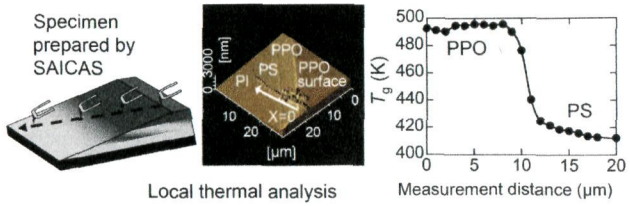
Justin Che,* Christian Burger, Shigeyuki Toki, Lixia Rong, Benjamin S. Hsiao, Sureerut Amnuaypornsri, and Jitladda Sakdapipanich



9722 S dx.doi.org/10.1021/ma401705v

Direct Measurement of Chain Diffusion at Interfaces of PPO/PS Bilayer Films by Nano-Thermal Analysis and Time-of-Flight Secondary Ion Mass Spectrometry

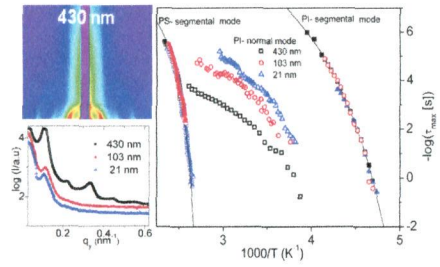
Noriyuki Tanji, Hui Wu, Motoyasu Kobayashi, and Atsushi Takahara*



9729 dx.doi.org/10.1021/ma4019334

Molecular Order and Dynamics of Nanometric Thin Layers of Poly(styrene-*b*-1,4-isoprene) Diblock Copolymers

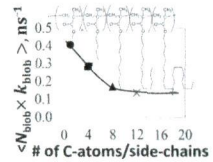
Wycliffe K. Kipnusu,* Mahdy M. Elmahdy, Martin Tress, Markus Fuchs, Emmanuel U. Mapesa, Detlef-M. Smilgies, Jianqi Zhang, Christine M. Papadakis, and Friedrich Kremer



9738 S dx.doi.org/10.1021/ma402093v

Effect of Side-Chain Length on the Polymer Chain Dynamics of Poly(alkyl methacrylate)s in Solution

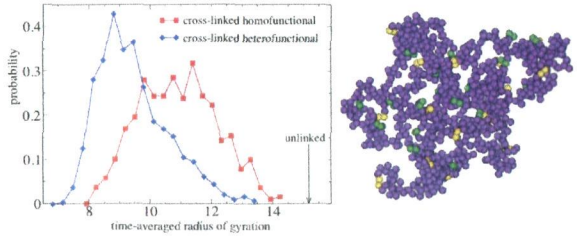
Shiva Farhangi, Henning Weiss, and Jean Duhamel*

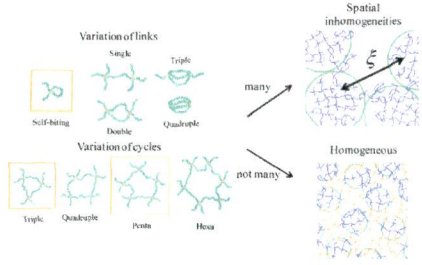


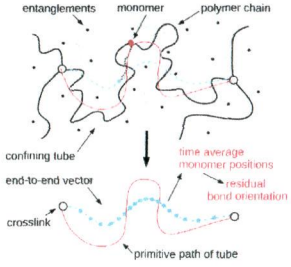
9748 dx.doi.org/10.1021/ma4021399

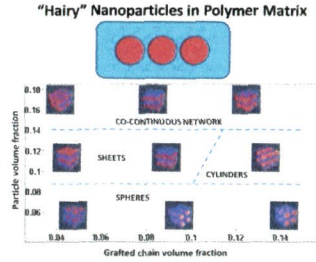
Advantages of Orthogonal Folding of Single Polymer Chains to Soft Nanoparticles

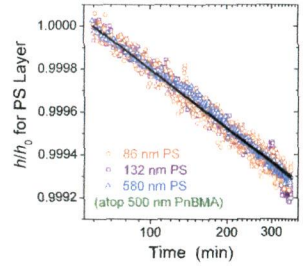
Angel J. Moreno,* Federica Lo Verso, Ana Sanchez-Sanchez, Arantxa Arbe, Juan Colmenero, and José A. Pomposo

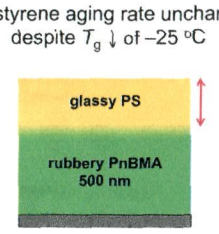


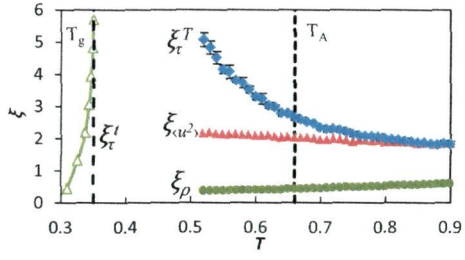


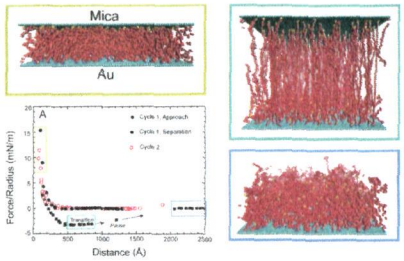


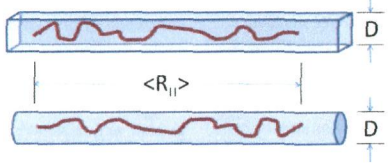












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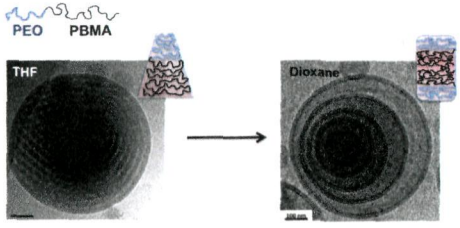

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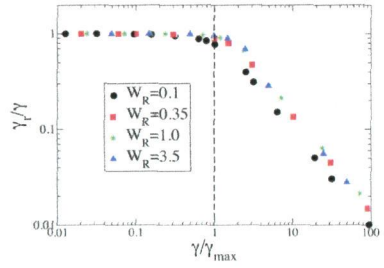

Ⓢ Supporting Information available via online article