

Polymer studies by soft X-ray Microscopy (supplemental material for Polymer review)

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species	References (YYYY(first_auth.)(second_auth)&	Comments
TO BE CATEGORIZED		
	1994ZA&	micro-XANES demonstrated
	1997A	
	1997CD&	Polymer surface applications
REVIEW Sham	2001AU	Polymer microscopy review
	2003WA&	Application to rubber science
	2007ZL&	compatibilizers
various polymers	1995AH&	
Ade-Urquhart REVIEW	2002AS	
	2004A	
Single synthetic polymers		
liquid crystal - polyester	1996AS&, 1997AS&, 1998Aa	
poly(ϵ -caprolactam) [Nylon-6]	1998Aa, 2002CUA	radiation damage
polyacrylate [PAR]	1997AS&, 1998Aa, 1998Ab	
polybutadiene-acrylonitrile blend [ABS]	2001SA&a	
polyacrylic acid [PAA]	2002MW&, 2002KH&	Cross-link mapping
polyacrylonitrile [PAN]	1992AZ&, 1998KW&, 2007WS&, 2007ULF, 2007WHS	Heat treatment, chemical litho
polyaniline [PANI]	2005GS&	in situ electrochemistry
poly(bisphenol-A-carbonate) [PC]	1997AS&, 1998Aa, 2001SA&a, 2001SU&, 2002CUA, 2007ULF	NSLS polymer & tribology review (Ade)
polyethylene [PE]	1997AS&, 1998Aa, 2001SU&, 2002CUA, 2006WR&, 2007ULF	T-m depends on substrate
Poly(ethylene carbonate) [PC]	2007WHS, 1998Ab	Chemical litho
poly(ethylene terephthalate) [PET]	1997AS&, 1997RH&, 1998Aa, 2007HD&, 2007ULF	damage rate relative to EM
poly(ethylene succinate) [PES]	2002CUA	radiation damage
polyimide	1993AH, 1996SA, 1998CD&, 2006CH&	dichroism mapping, LC film orientation
polylefins	2002AK&	

polymethylmethacrylate	[PMMA]	2001SU&, 2002CUA , 2002ZF&, 2003BJ, 2007WM&, 2007WM&, 2007WS&, 2007ULF	radiation damage
poly- α -methylstyrene		2007ULF	Orientation review
poly(p-phenylene terphthalamide	[Kevlar™]	1993AH, 1995AS&, 1997WA&, 1997AS&, 1998Aa, 1998Ab, 1998Ab, 2007ULF	
polypropylene	[PP]	1992AZ&, 1997AS&, 1998Aa, 2001SU&	
Poly(propylene carbonate)	[PPC]	2007WHS	Chemical litho
poly (propylene oxide)	[PO]	2002CUA	radiation damage
polypyrrole	[PP]	1999MH&	defects in electronic grade
polystyrene	[PS]	1992AZ&, 1997AS&, 1997AS&, 1998Aa, 2002KD&, 2007WM&.	craze alignment, dichroism
polyureas (aromatic, aliphatic with amine catalysts) [PU]		1997AS&a, 2001H	
polyurethanes (MDI or TDI, with polyether) [PUR]		1995AS&, 1997AS&, 1997WA&, 1999UH&, 2001H, 2001HK&, 2002CUA ,	
poly(vinyl methyl ketone)	[PVMK]	2002CUA	radiation damage
Poly(#-vinyl pyridine) (#=2,4)	[PVP]	2005FA&, 2009FD&	microgels
Silsequioxane		2002ZF&	Resist material
BLENDS			
BR/BIMS rubbers		2004W	
fullerene-PHT, PCBM composites		2006MW&b	reinforcement
LC polyester		1996AS&, 1997AS&a	
LDPE/PET/Kraton		1996AS&, 1997AS&a, 1998Aam 1998Ab	
2,5-diphenyl-1,3,4-oxadiazole		1999GS&	
PC/ ABS		1996AS&, 1997AS&a, 1998Ab	
PC / PET		1995AS&	
PET / Vectra™		1998Ac, 1998SB&	
PMMA/PE-a-P		2000SA&, 2000SS&a, 2000SS&b, 2001SA&c	rubber modified PMMA
PMMA/PI		1999SS&, 2000SA&, 2000SA&b, 2000SS&b	Cryo-mechanical blends
polyurea – aromatic, aliphatic		2007HL&	capsules
polyurethane, SAN, pipa		1997AS&a, 2001KH&, 2002RU&, 2003KT&, 2007ULF	ALS interferometric STXM
PS, p-BrS		1998AW&, 1998SA&, 2000SA&c, 2001SU&, 2003GK	dewetting
PS, PBMA		1999SG&	
PS, PMMA		1999AW&, 1999ZL&, 2000WA&a,	Phase segregation

	2000WG&, 2000WZ&, 2001MI&, 2003HAA, 2007ULF 2003WS&, 2005TO&	
PS, PMMA, WS ₂ nanotubes	2003ZG	
RBC-PS blend	1997SL&	block – blend system
poly(styrene- <i>b</i> -acrylonitrile) [SAN]	1995AS&, 1998Aa	
TFB / F8BT blend (organic photoconverter)	2006MW&a	solar cell optimization
Bio-polymers		
Albumin, human serum	2003LS&, 2006LH&, 2007SH&	
fibrinogen	2004MH&, 2007WM&, 2007SH&	
Albumin on (PS, PMMA)	2006LH&	protein adsorption on polymer blend
Albumin on (SAN, pipa) filled polyurethane	2001H	protein adsorption on polymer blend
Albumin on PTMO-ED-MDI	2001H	protein adsorption on polymer blend
Fibrinogen on (PS, PMMA)	2004MH&	protein adsorption on polymer blend
Fibrinogen on (SAN, pipa) filled polyurethane	2002HM&	protein on polymers, dry vs. wet
polysaccharide	2003LS&	
silk	2006CR&, 2006HH&, 2007RH&, 2007ULF	Dichroism mapping
Complex polymeric materials		
coke	1998Aa	
Core-shell microspheres DVB core; DVB-EGDMA blend shell	2001KH&	core-shell microspheres
Tectocapsules – polyurea capsules linked to (DVB55, EGDMA) microspheres	2005CS&	tectocapsules
Ca alginate capsules reinforced with poly N-vinylpyrrolidone	2005AH&	
Filtration membranes (PE, PAA)	2002KH&	
food packaging film (PVC-PET, etc - 9 layer)	2001SU&	
Nafion fuel cell membrane	2007LG&	RuO ₂ enhancement
P4VP/SiO ₂ microgel particles pH swellable	2005FA&, 2007FA&	pH dependent structure
PB/ BIMS / filler (= C-black or SiO ₂)	2001ZG&	nanofiller effect on interfaces
PC / SAN / clay composites	2006SA&a	
PS / EVA / clay composites	2006SA&a	
PS/polyacrylate microspheres (wet)	2007JT&, 2007HD&	STXM tomography
PS / PAN / PP composite	2006SA&a	
PS / PI / PS trilayer	2001H	
PS / PMMA / clay composites	2006SA&a	
polyurea capsules - gradient	2001H	
tires	2001SA&b	Mechanical blends
toners	2006IT&a, 2006IT&b	
wood	1998Aa, 2000C	fossil versus recent wood

Zinc-diphosphates (ZDDP) tribo-films	1997AS&a	polyphosphate wear films
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Polymer abbreviations

Alb, HSA	human serum albumin
ABS	polybutadiene-acrylonitrile blend
DVB55	divinylbenzene (45% monovinylbenzene)
EGDMA	ethylene glycoldimenthylacrylate
EVA	poly (ethylene-co-vinyl alcohol
Fg	fibrinogen
F8BT	poly(9,9'-dioctylfluorene-co-benzothiadiazole)
LDPE	low density polyethylene
Kraton	type of rubber
MDI	merhlyene di(isocyanate)
Nylon-6	poly(ϵ -caprolacatam)
PAR	polyacrylate
PBMA	poly-n-butyl-methacrylate
PPrS	poly-bromo-styrene
PC	polycarbonate
PET	poly(ethyleneterephthalate)
PMMA	polymethylmethacrylate
PAA	polyacrylic acid
PE	polyethylene
PEP	poly(ethylene- <i>alt</i> -propylene)
PI	polyisoprene
PP	polypropylene
PPTA	poly(p-phenylene terphthalamide) = Kevlar TM
PS	polystyrene
PTMO-ED	polytetramethylene oxide + ethylenediamine + MDI)
PVP	poly(#-vinyl pyridine) (# = 2,4)
RBC	poly[(styrene- <i>r</i> -isoprene)'- <i>b</i> -(styrene- <i>r</i> -isoprene)''], (S/I)'- <i>b</i> -(S/I)'', copolymer; ' = 75/25; '' = 50/50 (wt %) S/I block compositions
TDI	toluene di(isocyanate)
TFB	poly(9,9-dioctylfluorene-co-N-(4-butylphenyl)diphenylamine)
Vectra	poly(butylene terephthalate)