CURRICULUM VITAE

1. PERSONAL DATA:

Name:	**Dr Kazunobu SENOO**
Sex:	Male
Age:	29
Birth:	March 23, 1972, Okayama, Japan
Nationality:	Japanese
Marital Status:	Married in April 2001
Health:	Excellent
E-mail:	senoo@liverpool.ac.uk
Tel.:	+44-151-794-3559
Fax:	+44-151-794-3558
Address:	Donnan and Robert Robinson Laboratories, Department of Chemistry, The University of Liverpool, Crown Street, Liverpool L69 7ZD, UNITED KINGDOM

2. EDUCATION:

1991. 4-1995. 3	Undergraduate study at Department of Material Science, Faculty of Engineering, Kyoto Institute of Technology, Japan, on sulfonation of multibranched polystyrene prepared by macromonomer method.
1995. 4-1997. 3	Master course study at Department of Material Science, Graduate School of Engineering, Kyoto Institute of Technology, Japan, on liquid crystal formation of multibranched polystyrene induced by molecular anisotropy associated with its high branch density.
1997. 4-2000. 3	Ph. D. (“Studies of polymer design by polymerisations of macromonomers with transition metal catalysts”) at Department of Applied Chemistry, Faculty of Engineering, Osaka City University, Japan.

3. EMPLOYMENT RECORD:

1996. 4-1997. 3	Part-time Teaching Assistant Department of Material Science, Kyoto Institute of Technology, Supervision and assistance in undergraduate teaching laboratories.
1997. 4-1998. 3	Part-time Teaching Assistant Department of Applied Chemistry, Osaka City University, Supervision and assistance in undergraduate teaching laboratories.

2000. 4-2001. 3	Postdoctoral Research fellowship (“Polymorphic behaviour of syndiotactic polystyrene-based graft copolymers with polystyrene and polyisoprene side chains”) at Institute for Chemical Research, Kyoto University, Japan.
2001. 4-present	EPSRC funded Senior Research Associate (“Structural Control in Polymeric Materials Via Heterogeneous Polymerization using Dense Gas Solvents”) at Department of Chemistry, The University of Liverpool, United Kingdom.

4. LIST OF PUBLICATIONS:

1. Y. Tsukahara, Y. Ohta, and K Senoo, "Liquid crystal formation of multi-branched polystyrene induced by molecular anisotropy associated with its high branch density" *Polymer*, 1995, **36**, 3413.

2. K. Endo and K. Senoo, "Syndiospecific graft copolymerization of styrene with styrene terminated isoprene macromonomer by $CpTiCl_3$-methylaluminoxane catalyst" *Macromol. Rapid Commun.*, 1998, **19**, 563.

3. K. Endo and K. Senoo, "Synthesis and properties of syndiotactic graft copolymer of styrene with polyisoprene macromonomer by $CpTiCl_3$-methylaluminoxane catalyst" *Polymer Journal*, 1999, **31**, 817.

4. K. Endo, Y Takakura, and K. Senoo, "Synthesis of polyisoprene macro monomer having terminal vinyl group and copolymerization of the macromonomer with ethylene and propylene" *European Polymer Journal*, 1999, **35,** 1413.

5. K. Endo and K. Senoo, "Syndiospecific copolymerization of styrene with styrene macromonomer bearing terminal styryl group by $CpTiCl_3$-methylaluminoxane catalyst" *Polymer*, 1999, **40**, 5977.

6. K. Senoo and K. Endo, "Reactivity of macromonomer in copolymerization of styrene with styrene-terminated macromonomer by $CpTiCl_3$-MAO catalyst" *Polymer Bulletin*, 2000, **44**, 25.

7. K. Senoo and K. Endo, "Isospecific copolymerization of styrene and styrene-terminated polyisoprene macromonomer with $Ni(acac)_2$-MAO catalyst" *J. Polym. Sci.; Part A Polymer Chemistry*, 2000, **38**, 1241.

8. K. Senoo and K. Endo, S. Murakami, and M. Tosaka, "Crystallization of newly syndiotactic graft copolymers" *Chemistry Letter*, 2000, no. 3, 278.

9. K. Endo and K. Senoo, Y. Yamanaka, and Y Matsuda, "Homopolymerization and copolymerization of styrene and butadiene with nickelocene-metylaluminoxane catalyst" T. Sano, T. Uozumi, H. Nakatani, and M. Terano, eds., "*Progress and Development of Catalytic Olefin Polymerization*", Technology and Education Publishers, Tokyo, 2000, p 98.

10. K. Senoo, K. Endo, "Synthesis of Novel Syndiotactic Poly(macromonomer) Consisting of Styrene-Terminated Polyisoprene Macromonomer with Half-titanocene Catalysts", *Macromol. Rapid Commun.*, 2000, 1244.

11. Y. Tsukahara, M. Miyata, K. Senoo, N. Yoshimoto, K Kaeriyama, "Mesomorphicphase formation of poly(macromonomer)s of polystyrene macromonomers" *Polymers for Advanced Technologies* 11: (5) 210-218 MAY 2000.

12. K. Endo and K. Senoo, "Synthesis of Regular Branched Polymers from Polymerization of Macromonomers with Metallocene Catalysts", *Kobunshi Ronbunshu* (*in Japanese*), 2000, **57**, 770.

13. K. Senoo, K. Endo, M. Tosaka, S Murakami, and S Kohjiya, "Polymorphic Behavior of Syndiotactic Polystyrene-based Graft Copolymers with Polystyrene and Polyisoprene Side Chains", *Macromolecules,* 2001, 34, 1267.

14. Elinor L. Bedia, S. Murakami, K. Senoo, and S. Kohjiya "Structural Development on Immiscible and Miscible Blends of Isotactic Polypropylene and Ethylene-1-Hexene Copolymer Blends under Uniaxial Drawing" *Polymer* in press.

15. K. Senoo, S. Kohjiya, and K. Endo, "Synthesis and characterization of elastomeric material using metallocene catalysts" Gomu-kyokaishi (in Japanese) in press.

16. S. Murakami, K. Senoo, and S. Kohjiya, "Structural Development of Natural Rubber during drawing by in situ Wide-Angle X-ray Diffraction Measurement" *Polymer* submitted.

17. K. Senoo, M. Ohara, M. Tosaka, S. Murakami, and S. Kohjiya, "High-order structure of Syndiotactic Polystyrene-based Graft Copolymers" *Macromolecules* submitted.

5. PERSONAL ACTIVITY:

Karate (Shorinji kenpo style)
Fork Dance (waltz, Hungarian and Scottish dance)
Basketball, Tennis, Table tennis, and pool.

6. ACKNOWLEDGEMENT:

EPSRC
Engineering and Physical Sciences Research Council

ACADEMIC QUALIFICATIONS AND EXPERIENCE

The control of first order structure is an important factor to effect on the architecture of the higher order, and has been carried out using living and stereospecific polymerisations. The macromonomers have been most useful monomers for this purpose. Through my studies using this method, I have gained a lot of qualifications and experience.

Technical experience:

- Experienced in living ionic, radical, and coordination polymerisations.
- Experienced in polymer modification such as sulfonation and esterification.
- Extensive use of characterization techniques including GPC, VPO, MO, FT-IR, NMR (^{1}H-, ^{13}C-, and 2D-), TG-DSC, WAXD, SAXS (at Spring-8), AFM, TEM.
- Experienced in the structure and morphology of the highly stereoregular polymers.
- Experienced in polymerisation using supercritical fluid solvents

The good results we got are included into:

- The regular-multibranched polystyrene with long flexible polystyrene chains but without any mesogenic groups formed the liquid crystalline phase due to their large molecular anisotropy. ----------List of Publications Nos. 1 and 11

- Polymerisations of macromonomers with transition metal catalysts yielded novel stereoregular graft copolymers such as syndiotactic and isotactic polymers with a variety of long branched chain. ---------List Nos. 2-9, and 15.

- Homopolymerization of the styrene-terminated macromonomer with a metallocene catalyst produced a stereoregular multibranched polymer with high degree of polymerisation. The obtained polymer consisted of branched chains on every second carbon atom of the backbone, and it had an extremely high-branched chain density. ----------List No. 10

- Structural Development on Immiscible and Miscible Blends of Isotactic Polypropylene, Ethylene-1-Hexene Copolymer or Natural Rubber were carried out under Uniaxial Drawing by in situ Wide-Angle X-ray Diffraction Measurement ----------List of Publications Nos. 14 and 16

- Polymorphic behaviour of syndiotactic polystyrene-based graft copolymer with atactic polystyrene side chains was found to be different from that with polyisoprene side chains. The effect of the graft chains on crystallisation was interpreted in terms of the friction force and the cohesive power.
  ----------List Nos. 8, 13 and 17