

論文 / 著書情報  
Article / Book Information

題目(和文)	メゾスコピック局所配向構造に起因するマクロ物性制御及び応用
Title(English)	Local molecular orientations and structures affecting liquid crystalline properties
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出典(和文)	学位:博士(工学), 学位授与機関:東京工業大学, 報告番号:甲第9438号, 授与年月日:2014年3月26日, 学位の種別:課程博士, 審査員:石川 謙,森川 淳子,江間 健司,戸木田 雅利,早水 裕平
Citation(English)	Degree:Doctor (Engineering), Conferring organization: Tokyo Institute of Technology, Report number:甲第9438号, Conferred date:2014/3/26, Degree Type:Course doctor, Examiner:,,,,
学位種別(和文)	博士論文
Category(English)	Doctoral Thesis
種別(和文)	要約
Type(English)	Outline

(博士課程)  
Doctoral Program

## 論文要約

THESIS OUTLINE

専攻 : Department of	有機・高分子物質 専攻	申請学位 (専攻分野) : 工学 博士 Academic Degree Requested	Doctor of (Engineering)
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論文題目 Thesis Title	Local molecular orientations and structures affecting liquid crystalline properties (メゾスコピック局所配向構造に起因するマクロ物性制御及び応用)
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要約  
Thesis Outline

This thesis mainly presents how local (microscopic and mesoscopic) static/dynamic liquid crystalline (LC) structures modify the macroscopic LC behaviors, specifically taking note of the characteristics of electrical, optical and mechanical ones. Contrary to the preceding and basic studies giving connections between the phase structures (macroscopic) and phase behaviors, the present concerns provide a unique bridge between the nano-scale "small" and macroscopic "large" worlds. I put emphasis on matters that local LC structures with different symmetries and architectures, serving as external fields, than that in bulk can induce (i) the surface transition, which is distinguishable to the bulk phase transition, (ii) the reorientation structure transition and (iii) anomalously large bend elastic constant and faster electro-optic response in LCs. In *Appendix* part, characteristics of newly-synthesized dimeric liquid crystals, even though which are slightly out of scope of thesis's title, that exhibit unusual phase behaviors are presented.