

平成9年度入学 大学院博士後期課程 物質生産工学専攻 (生物有機化学講座)

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論文題目：新規有機-無機複合組織体の分子設計とその機能化

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- **Abstract**

This thesis is consisted from eight chapters.

The chapter 1 is the introduction section, and explains general concept and background of intercalation reaction, and layered double hydroxide (LDH), and the possibility of intercalation compound as functional compounds. In this section, the respective chapter of this thesis is described.

In chapter 2, the preparation and characterization of new layered organic-inorganic nanohybrids by the reaction of amorphous $Zn(OH)_2$ with organic oxychlorides were described.

In chapter 3, the preparation method and characterization of new layered organic-inorganic nanohybrids by the organo derivatization reaction of $Zn(OH)_2$ with various carboxylic acids were described.

In chapter 4, making clear the mechanism for the formation of fibrous compound whose production depended on the structure and amounts of the organic compounds reacted.

In chapter 5, the preparation method of the Zn/Al LDH thin film was established and intercalation of porphyrin anions into the Zn/Al LDH and that of thin film was carried out. Furthermore, the photochemical property of thin film was reported.

In chapter 6, the secondary interaction such as electric interaction, and examined the control of interlayer spacing by coordination action of molecule. Moreover, the author has reported to a novel function such as reversible change of interlayer spacing for intercalation compound in the LDH.

In chapter 7, the surface modified LDH containing azo compound was prepared by the reaction of the water treated Zn/Al LDH (OH-LDH) with p-phenylazobenzoyl chloride and selective incorporation of photochromic compound such as thioindigo into the layered organic-inorganic nanohybrids. Conclusions and scope in future are described in chapter 8. This thesis suggests possibility of new functional materials by self-ordered and self-assembly.