List of Dissertation Abstract (Environment and Natural Sciences)

Name	Supervisor	Title	Abstract
Hyung-Wook YU	Shinya Matsumoto	Structure-property relationship in solid-state fluorescence of novel bisazomethine dyes	In an attempt to obtain high performance fluorescent solids and pure J-aggregate solid films, the present study was conducted on the effect of alkoxy substituents on the molecular arrangements and solid-state optical properties in the BAM dyes. Some dyes were considered to form J-aggregates in vapour-deposited films, with the shape of the absorption spectrum.
Daisuke AIBA	Ryoji WANI	Phylogenetic study of the family Nostoceratidae (Cephalopoda: Ammonoidea) in the northwestern Pacific realm	The family Nostoceratidae is one of the heteromorph ammonoid families of Late Cretaceous. Although many studies have revealed parts of the phylogeny of Nostoceratidae, other parts of the phylogeny of some genera belonging to Nostoceratidae are still uncertain. In this dissertation, the shell morphology of the species belonging to two genera, Hyphantoceras and Eubostrychoceras, were examined by both quantitative and qualitative methods. Based on the analyses and observations, the phylogenies of these genera were revealed. The stratigraphic changes in the shell morphology of these genera suggest a common trend that tends to become more elongated in the later age.
Yoko Akune	Shinya Matsumoto	Study on the occurrence of polymorphs and the optical properties in a series of benzylated diaminodicyanopyrazine dyes	Polymorphism of a series of benzylated pyrazine dyes was analysed to obtain molecular structural factors which contribute to the polymorph prediction and material design using polymorphism. The occurrence of the polymorphs and their optical properites were evaluated on the basis of the comparison with crystal structures. The analysis revealed that conformational flexibility and terminal substituents played an importnat role in the occurrence of the polymorphs and their optical properites. These two factors were also involved in the occurrence of vapoluminescence in the pyrazine derivative with 4-chlorobenzyl substituents. This study indicated that the two factors are useful for the polymorph prediction and material design using polymorphism.