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指導教員 承認印	
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学位 (博士) 論文要旨
(Doctoral thesis abstract)

論文提出者 (Ph.D. candidate)	工学府博士後期課程 応用化学 専攻 (major) 平成 27 年度入学(Admission year) 学籍番号 15832303 鈴木 春香 印 (student ID No.) (Name) (Seal)
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論文題目 (Title)	Proposal of Method for Production of Uniform Crystalline Particles by Analyzing Crystallization Phenomena at the Template Interface (鋳型界面での結晶化現象の解析による均一な品質の結晶粒子群製造法の提案)
論文要旨 (2000 字程度) (Abstract(400 words)) ※欧文・和文どちらでもよい。但し、和文の場合は英訳を付すこと。 (in English or in Japanese) Crystallization operations are carried out in order to purify a target component or to obtain crystalline particles. There are various difficulties of crystalline particles in crystal qualities such as size distribution, morphology and polymorph. The essence of the problem of each crystal quality is the non-uniformity of crystalline particles. In conventional method, the start time of the nucleation period fluctuates and the nucleation period is long. As a result, crystalline particles with non-uniform quality are obtained. The reason of the non-uniformity of crystal quality is long nucleation period. Therefore, crystallization method which can realize short nucleation period is ideal. Crystalline particles with uniform size were previously observed at the template interface. This suggests that crystallization method with template interface has mechanisms for formation of crystalline particles with uniform quality. Furthermore, nucleation trigger at the template interface can be used to control the start time of the nucleation period. Objective of this present study is to propose the method which achieves short nucleation period in order to produce crystalline particles with uniform quality by analyzing crystallization phenomena at the template interface. Crystal growth of crystalline particles at the static template interface was observed. Results suggested the existence of any interaction between crystals. Although the template interface was disturbed, the uniformity of size was maintained. This suggested the existence of a force which	

inhibited new nucleation between neighboring crystals. This force was named the repulsive force.

Crystallization phenomena at the template interface were observed for understanding the reason of uniformity of size. Observation results estimated that uniformity of size was caused by the unique spread of crystalline particles. This phenomenon meant that no additional nucleation occurred between neighboring crystals, and can be explained by the existence of the repulsive force.

Morphology of crystalline particles at the template interface was observed for understanding the reason of uniformity of morphology. Obtained relationship between clearance and morphology suggested that uniformity of morphology was caused by the uniformity of clearance. The uniformity of clearance meant short nucleation period. Short nucleation period can be explained by the existence of the repulsive force.

Inhibition of additional nucleation which occurs in crystallization with template interface can be used to achieve the short nucleation period. Mechanisms of characteristic phenomena can be explained by the existence of the repulsive force. In conclusion, application of the repulsive force to new method which achieves the short nucleation period can be proposed.

(英訳) ※和文要旨の場合(400 words)