

||||| 特集：国際宇宙ステーションの応用利用 |||||  
(解説)

## 3次元フォトリック結晶 (3DPC) 生成宇宙実験

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### Three-Dimensional Photonic Crystal (3DPC) Growth Space Experiment

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#### Abstract

We are developing technology to make three-dimensional photonic crystals (3DPC) by self-organization of charged colloidal particles under microgravity condition in the International Space Station (ISS). The photonic crystals will be widely used for optical devices such as optical spectral analyzers or pulse compression/extension devices. To contribute to the industry, we put prime importance on collaboration among Industry-Academia-Government, which is the key of this space experiment project.

Colloidal crystals formed by charged colloidal particles have very fragile structures. To retrieve them from the ISS, we plan to fix them by gel. As fixed with elastic gel, these soft crystals can change their grid intervals by controlled compression. In other words, one device can respond to various wavelengths of light.