

量子物理学・ナノサイエンス第 436 回セミナー

※本セミナーは学術変革領域(A)「動的物質科学の創成 量子と古典の枠を超える」および学術変革領域(A)「進化情報アセンブリによる生命機能の創出原理」との共催です。

Wave coarsening drives time crystallization in mechatronic metamaterials

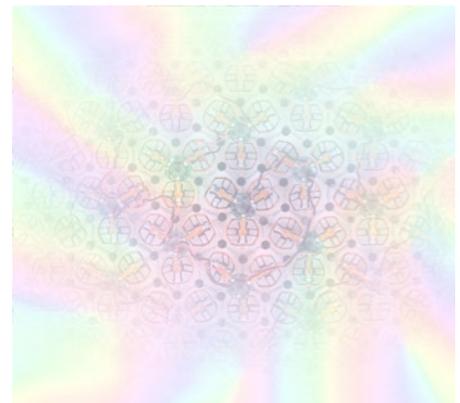
講師 : **Professor Corentin Coulais**
University of Amsterdam, Netherlands

日程 : **4月8日(水) 10:30 -**

場所 : **本館2階 290 物理学系輪講室および Zoom***

概要

When metals are magnetized, emulsions phase separate, or galaxies cluster, domain walls and patterns form and irremediably coarsen over time. Such coarsening is universally driven by diffusive relaxation toward equilibrium. Here, we discover a vibrational counterpart--wave coarsening--in active elastic media: vibrations emerge and spontaneously grow in wavelength, period, and amplitude, before a globally synchronized state called a time crystal forms. We observe wave coarsening in one- and two-dimensional mechatronic metamaterials and capture its dynamical scaling. We further arrest the process by breaking momentum conservation and reveal a far-from-equilibrium nonlinear analogue to chiral topological edge modes. Our results open new questions about the transient physics of systems with non-potential interactions and suggest an organizing principle for nonlinear waves in acoustics, optomechanics, living matter, and soft robotics.



*本 ZOOM セミナーに参加されます場合には、事前に下記より登録を済ませてください。

<https://zoom.us/meeting/register/K4FBE190TqeWm0CoObrn8Q>



当日会場にお越しただけます方は、登録不要ですので、是非、対面でご参加ください。

連絡教員 **花井 亮 (内線 2070) ・ 西口 大貴 (内線 2447)**