32nd IIR-ASMat Seminar
（IIR-ASMat & CLS 合同セミナー）

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Synthetic RNA condensates and organelles

Condensation of RNA and proteins forms functional membrane-less organelles that are central to cellular processes. Programming such condensation could enable metabolic engineering and the construction of synthetic cells. I will present a modular platform for engineering de novo RNA condensates from designed, branched RNA nanostructures that fold and assemble during transcription. Up to three orthogonal condensates can form simultaneously and selectively accumulate fluorophores via embedded fluorescent light-up aptamers. The condensates can be genetically encoded and expressed in synthetic cells, allowing control over number and size and enabling protein capture. Interactions can be tuned using linker RNAs to create biphasic condensates with controlled mixing. Finally, I will demonstrate deployment of the platform to engineering non-natural organelles in living *E. coli*.

日時：2026年3月18日（水）14:00~15:00

場所：東京科学大学すずかけ台キャンパス S8棟 1階 レクチャールーム

共催：基盤S「分子-ディジタル融合によるArtificial Liquid Intelligenceの創製」
学術変革A「進化アセンブリ」・ JST ASPIRE

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