

## **CONTROLLING AND UNDERSTANDING SINGLE AND MULTICOMPONENT SUPRAMOLECULAR GELS**

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Supramolecular gels can be prepared by the self-assembly of small molecules into fibrous structures. The properties of the resulting gels depend on how the gels are formed, such that gels with very different properties can be prepared from a single gelator if different gelation methods are used. We have been working to understand this, and for example can prepare gels that can or cannot be 3D-printed from the same gelator by varying gelation method. Here, we will focus on explaining the design rules. As specific examples, we will discuss how varying the chirality of our dipeptide-based gelators can be used to control the self-assembled aggregates, leading to differences in the final gels. We will also show how our understanding can be expanded to multicomponent systems, where each component gelator can form gels alone. In these mixed systems, we can control assembly such that self-sorted multicomponent gels are formed. We will show how such systems can be characterised to prove this assembly and how this approach can be used to prepare gels with controlled and specific properties.