**Dynamic Helical Macromolecular Catalysts for Asymmetric Catalysis in Green Solvents**

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Use of “green”, i.e., environmentally benign, solvents attracts much attention in synthetic organic chemistry as a part of the effort to make molecular science and technology sustainable. The driving force for the use of green solvents in organic synthesis includes not only environmental reasons, but also their positive effects on reaction profiles arising from the solvent effects on reaction thermodynamics and kinetics. In asymmetric catalysis, for instance, green solvents are expected to have remarkable impact on determining the enantioselection in a positive way. In this presentation, asymmetric catalytic reactions in pure water[[1]](#footnote-1) and chiral natural organic solvents[[2]](#footnote-2) are discussed, where helical chiral macromolecular catalysts play crucial roles. Particular attention is focused on the use of achiral macromolecular catalyst in (*R*)- or (*S*)-limonene, which are inexpensive, nontoxic, natural hydrocarbon solvent and found to serve as a sole source of chirality in catalytic asymmetric reactions.2

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1. Kamiya, N.; Nagata, Y.; Suginome, M. *manuscript in preparation*. [↑](#footnote-ref-1)
2. Nagata, Y.; Takeda, R.; Suginome, M. *ACS Central Science* **2019**, *5*, 1235. [↑](#footnote-ref-2)