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### Emerging of stretched and contracted helices of substituted polyacetylenes and its molecular oscillation in solution

Stretched (cis-transoid) and contracted (cis-cisoid) helices of mono-substituted polyacetylenes (SPAs) were selectively prepared using a  $[\text{Rh}(\text{norbornadiene})\text{Cl}]_2$  in the presence of amine or alcohol cocatalyst in solution. The cis-transoid and cis-cisoid helices constructed from the aliphatic polyacetylenes ester main chain in solution showed an accordion-like helix oscillation and helios, respectively, where restricted rotations around the O-C bond in the ester side-chain are dynamically synchronized. The magnetic behavior of the cis and trans radicals of SPAs produced through the rotational scission of the C=C bonds is also reported.

#### Biography

Masayoshi Tabata has completed his PhD from Hokkaido University, Japan and Postdoctoral studies from United Kingdom and Sweden. After that he became Assistant Professor and Associated Professors at Hokkaido Univ., and Professor of Muroran Inst. of Tech., Japan. Moreover, he also became a senior research director at National Institute of Advanced Industrial Science & Tech. (AIST) Tsukuba, Japan, and Guest Professor at Paris Univ. in France.

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