



- ▶ All Actions
- ▶ Biomedicine and Molecular Biosciences (BMBS)
- ▶ **Chemistry and Molecular Sciences and Technologies (CMST)**
 - In Detail
 - **Actions**
 - Restricted Area
- ▶ Earth System Science and Environmental Management (ESSEM)
- ▶ Food and Agriculture (FA)
- ▶ Forests, their Products and Services (FPS)
- ▶ Individuals, Societies, Cultures and Health (ISCH)
- ▶ Information and Communication Technologies (ICT)
- ▶ Materials, Physics and Nanosciences (MPNS)
- ▶ Transport and Urban Development (TUD)
- ▶ Trans-Domain Proposals

CMST COST Action CM0703

Systems Chemistry

Descriptions are provided by the Actions directly via e-COST.

The main objective of the Action is to investigate autocatalytic reaction systems within supramolecular, prebiotic, and other fields of chemistry and to develop methods for their integration into dynamic supersystems.

Systems chemistry is the joint effort of prebiotic and supramolecular chemistry assisted by computer science from theoretical chemistry, biology, and complex systems research to tackle dynamic supersystem integration including at least one autocatalytic subsystem. It is the bottom-up pendant of systems biology towards synthetic biology. The origin of life is seen as a major stimulus to organize research but the field is open for chemistries of limited prebiotic plausibility. Subsystems may be classified as genetic, metabolic, or compartment-building. Pairwise integration into higher organized supersystems is expected to yield the knowledge enabling later the triple integration into minimal chemical cells. The integration approach will necessarily link to the question of asymmetric autocatalysis and chiral symmetry breaking, while the key challenge is to find the roots of Darwinian evolvability in chemical systems. 5 workgroups will define a trigonal bipyramid, where the axis theory to asymmetry is surrounded by 3 areas of integration.

Keywords: Autocatalysis, self-replication, self-reproduction, supramolecular chemistry, prebiotic chemistry

Chemistry and Molecular Sciences and Technologies COST Action CM0703

- ▶ **Description**
- ▶ Parties
- ▶ Management Committee



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Websites*

- Domain website:**
<http://www.cost.eu/cmst>

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