Special Issue

Advances in Self-Healing Polymer Composites

Message from the Guest Editor

Introducing a thermoreversible covalent bond in the crosslinked backbone allows topological reshuffling of polymeric networks, allowing us to rework and reform the crosslinked material. A well-established approach for the design and synthesis of covalent adaptable networks (CAN) is the dissociative Diels–Alder reaction, which takes place between furans and maleimides. As a further development in more easily reprocessable and self-healing thermosets, vitrimers are able to overcome the current drawbacks of CANs. One of the possible mechanisms enabling vitrimeric behaviour in epoxy resins is based on transesterification exchange reactions between esters and beta-hydroxyls formed by reacting epoxy precursors with suitable acids/anhydrides. This Special Issue aims to gather high-quality original research and reviews in the field of synthesis and functional characterization of thermoreversible self-healing polymers and their application. **keywords**

- vitrimers
- covalent adaptable networks
- self-healing
- creep; recyclability
- reactive thermoset
- dynamic bonds
- shape memory

Guest Editor

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Since its foundation in 2009, *Polymers* has developed into an internationally renowned, extremely successful open access journal. The editorial team and the editorial board dedicatedly combine open-access publishing and high-quality rigorous peer reviewing. The performance of the journal has proven this strategy to be well-suited and highly successful. This is reflected in the increasing impact factor of *Polymers*, the most recent one being 4.9.

I would like to invite you to contribute to the success of the journal by sending us your high quality research papers. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

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