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Synthesis of novel type of functional macromolecules by quasi living polymerizations and subsequent modifications

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Research and development of functional macromolecules is one of the most investigated topics in modern polymer science. Due to the large scale of potential compounds it is a real challenge to prepare new types of structures for a variety of applications. The synthesis of polymers often needs a multi-step process which includes an excess of reagents and solvents. Quasi-living polymerization methods were used by us to prepare well-defined functional polymers with narrow molecular weight distributions. By quasi-living polymerizations, it is possible to design the structure and the average molecular weight of macromolecules. To reach the final products, several subsequent modification steps were carried out. Requirements for these functionalization reactions are quantitative conversion, high yield, region-selectivity and using new alternative reagents, solvents instead of traditional compounds, which are often harmful for human health and environment. Carrying out multi-step modification reactions in one pot would result in both synthetic and economic advantages, such as using less reagents and solvents, saving reaction time and purification of intermediate products. Examples will be presented for several one-pot multi-step end functionalization reactions of polymers obtained by quasi-living polymerization processes.

Biography

Balazs Pasztoi has received his Master's degree in Chemistry in the year 2015. During his studies, he presented his scientific work in many international conferences. He participated in the National Conference of Scientific Students' Associations, where his results were honored with second prize. Currently, he is pursuing his PhD.

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