Selective Substitution of Hex$_2$SiFCl for the Preparation of Polymers with Two Different Alternate $\pi$-Electron Systems Linked by Hex$_2$Si Units

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_Dedicated to Professor Hubert Schmidbaur on the occasion of his 70th birthday_

Organosilicon polymers having a regular alternate arrangement of –Hex$_2$Si–$\pi$–Hex$_2$Si–$\pi'$– ($\pi$, $\pi'$ = $\pi$-electron system) were prepared by successive treatment of Hex$_2$SiFCl with dilithiated $\pi$-conjugated compounds, Li–$\pi$–Li and Li–$\pi'$–Li ($\pi$ = diethynylantracene, diethynylpyrene, diethynylcarbazole; $\pi'$ = bithiophenediyl, terthiophenediyl). UV-vis absorption spectra and cyclic voltammograms of the resulting polymers indicated that the two $\pi$-electron systems, $\pi$ and $\pi'$, are electronically isolated, while the emission spectra indicated that energy transfer between the $\pi$-electron systems occurred in the excited states.

Key words: Organosilicon Polymers, Chlorofluorosilanes, Selective Addition