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The counter-ion condensation behavior of linear polyelectrolyte polymers and polyelectrolyte gels HONGLEI GUO, TAKAYUKI KUROKAWA, Faculty of advanced life science, Hokkaido University, Sapporo, 060-0810, JAPAN, MASAKAZU TAKAHATA, Faculty of Science, Hokkaido University, Sapporo, 060-0810, JAPAN, WEI HONG, Iowa State University, Ames, Iowa 50011, United States, YOSHINORI KATSUYAMA, Faculty of advanced life science, Hokkaido University, Sapporo, 060-0810, JAPAN, YIWAN HUANG, Graduate school of life science, Hokkaido University, Sapporo, 060-0810, JAPAN, TASUKU NAKAJIMA, TAKAYUKI NONOYAMA, JIANPING GONG, Faculty of advanced life science, Hokkaido University, Sapporo, 060-0810, JAPAN — Polyelectrolytes are polymers whose repeating units bear an electrolyte group. The charges on a polyelectrolyte chain will repel each other and adopt a more expanded conformation. From linear polyelectrolyte chains to polyelectrolyte networks, the flexibility of chains decreases and thus induces a decrease of counter-ions activity. In this study, we adopt microelectrode technique (MET) to study the counter-ions condensation of polyelectrolyte hydrogels, and compare the condensation effect with the linear polyelectrolytes. The results show that the condensation of counter-ions is affected by the conformation of polymer strands: the less flexibility of polymer strands has less mobile counter-ions.

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