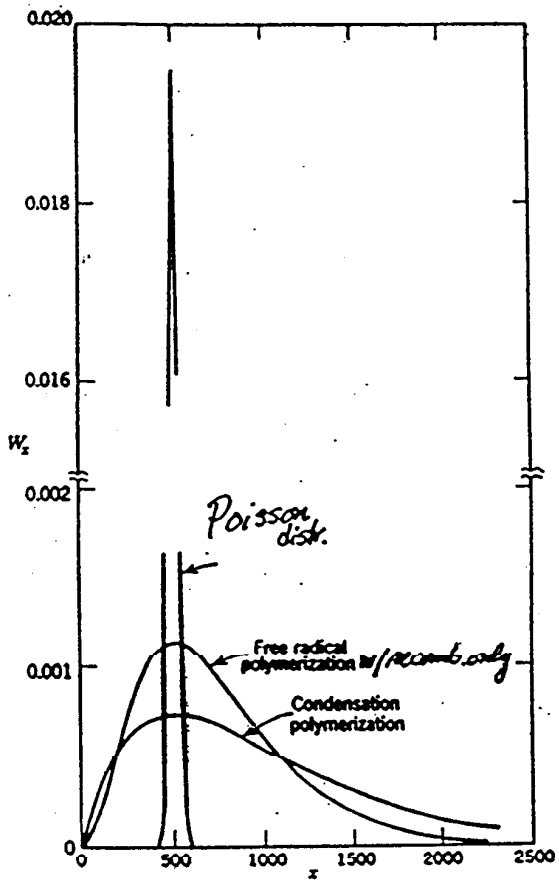
SUMMARY

Three types of polymer chain length distribution with the random variable N, degree of polymerization

	MPD Polycondensation of α,ω-hydroxyacid	Free radical polymerization with recombination only	POISSON Anionic polymerization by Li-carbanion
n_N, mole fraction of N-mer in discrete form	$p^{N-1}(1-p)$, $0 < p < 1$ $1 \le N \le \infty$	$(N-1)\alpha^{N-2}(1-\alpha)^2$, $0 < \alpha < 1$ $2 \le N \le \infty$	$\frac{e^{-\nu}\cdot\nu^{N-1}}{(N-1)!}$, $\nu >> 1$ $1 \le N \le \infty$
N_n, number average degree of polymerization	$\frac{1}{1-p}$	$\frac{2}{1-\alpha}$	$\nu+1$
w_N, weight fraction of N-mer in discrete form	$N\cdot p^{N-1}(1-p)^2$	$\frac{N(N-1)\alpha^{N-2}(1-\alpha)^3}{2}$	$\frac{Ne^{-\nu}\cdot\nu^{N-1}}{(\nu+1)(N-1)!}$
n(N, p), mole fraction of N-mer in the continuous limit	$q\cdot e^{-qN}$, $q \equiv 1-p$ $0 \le N \le \infty$	$\varsigma^2 N e^{-\varsigma N}$, $\varsigma \equiv 1-\alpha$ $0 \le N \le \infty$	$\frac{\exp[-(N-\nu)^2/2\nu]}{\sqrt{2\pi\nu}}$ $0 \le N \le \infty$
g(N, s), moments generating function in discrete form	$\sum_{N=1}^{\infty} s^N p^{N-1}(1-p)$ $= \frac{s(1-p)}{(1-ps)}$	$\sum_{N=2}^{\infty} s^N (N-1)\alpha^{N-2}\cdot(1-\alpha)^2$ $= \frac{(1-\alpha)^2 s^2}{(1-\alpha s)^2}$	$\sum_{N=1}^{\infty} s^N \cdot \frac{e^{-\nu}\nu^{N-1}}{(N-1)!}$ $= s\cdot\exp[\nu(s-1)]$
G(N, s), moments generating function in the continuous limit	$\frac{q}{q+s}$	$\frac{\varsigma^2}{(\varsigma+s)^2}$	$e^{-s\nu}\cdot e^{s^2\nu/2}$
m_k, kth moment	$\frac{k!}{q^k}$	$\frac{(k+1)!}{\varsigma^k}$	$\sum_{i=0}^{k} a_{ki}\nu^i$ (see below)
$N_w = m_2/m_1$	$\frac{2}{q}$	$\frac{3}{\varsigma}$	$\frac{\nu^2+\nu}{\nu} \cong \nu$, $(\nu >> 1)$
$N_z = m_3/m_2$	$\frac{3}{q}$	$\frac{4}{\varsigma}$	$\frac{\nu^3+3\nu^2}{\nu^2+\nu} \cong \nu$, $(\nu >> 1)$

$a_{00}=1$, $a_{10}=0$, $a_{11}=1$, $a_{20}=0$, $a_{21}=1$, $a_{22}=1$, $a_{30}=0$, $a_{31}=0$, $a_{32}=3$, $a_{33}=1$,
$a_{40}=0$, $a_{41}=0$, $a_{42}=3$, $a_{43}=6$, $a_{44}=1$, $a_{50}=0$, $a_{51}=0$, $a_{52}=0$, $a_{53}=15$, $a_{54}=10$, $a_{55}=1$


0.020
0.018
0.016
W_x
0.002
0.001
0
Poisson distr.
Free radical polymerization w/ recomb. only
Condensation polymerization
0
500
1000
1500
2000
2500
x