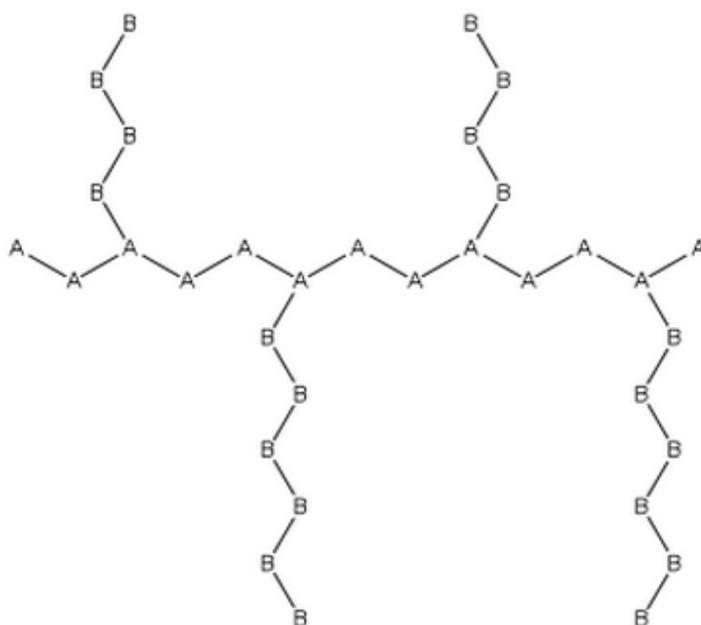


## Grafting of polymers and its Application

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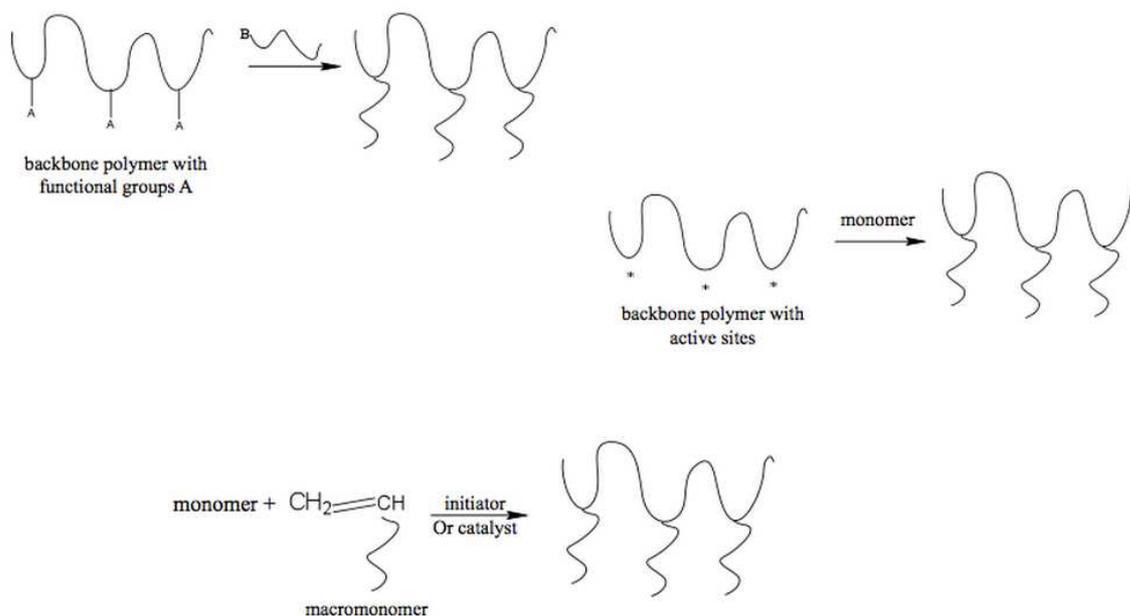
Graft Polymers are segmented copolymers with a linear backbone of one composite and randomly distributed **branches** of another composite. The picture labeled "graft polymer" shows how grafted chains of species B are covalently bonded to polymer species A.



The graft copolymer consists of a main polymer chain or backbone (A) covalently bonded to one or more side chains (B)

### Synthesis methods-

There are many different approaches to synthesizing graft copolymers. Usually they employ familiar polymerization techniques that are commonly used such as [atom transfer radical polymerization](#) (ATRP), [ring-opening metathesis polymerization](#) (ROMP), [anionic](#) and [cationic polymerizations](#), and free radical living polymerization.



The three common methods of synthesis Grafting onto (top left), grafting from (middle right), grafting through (bottom left), and their generalized reaction scheme are featured.

### Applications of Graft polymer-

#### 1. Membrane separation science-

1.1 Separation from the aqueous systems –

1.2 Separation from non-aqueous systems-

1.3 Temperature and pH sensitive membranes-

1.4 Enantioselective membranes-

1.5 Gas separation membranes-

1.6 Miscellaneous-

#### 2. Conducting Polymers-

#### 3. Hydrogels

## 1. Membrane separation science –

Process	Driving force	Retentive	Permeate
Osmosis Dialysis	Concentration difference	Solutes, water Large molecules, water	Water small molecules, water
Microfiltration Ultrafiltration Nanofiltration	pressure	Suspended particles, water large molecules, water small molecules, divalent salts, dissociated anids, water all solutes ,water	Dissolved solutes, water small molecules, water monovalent ions, undissociated acids, water
Reverse osmosis		All solutes, water	water
Pervaporation Electro dialysis	Electrical potential	Non-volatile molecules, water non-ionic solutes, water	Volatile small molecules, water ionized solutes, water

### Conclusion-

In this review, we have sketched different mechanistic approaches for grafting by chemical methods, radiation technique etc. It was shown that grafted membranes have the potential to separate mixtures. Grafting technique can be used to make the conducting polymers process able , and grafted materials based on conducting polymers have found applications as ion sensors, glucose sensors etc.

The grafting process is now expanding rapidly through electron beam curing processes that can be achieved in one step without further purification.