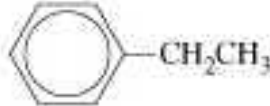


Gruppi funzionali

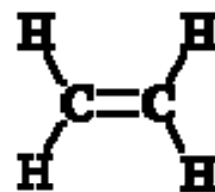
Alcani	$R-H$	$CH_3CH_2CH_2CH_2CH_2CH_3$
Alcheni	$\begin{array}{c} \diagup \\ C=C \\ \diagdown \end{array}$	$CH_2=CHCH_2CH_2CH_3$
Alchini	$-C\equiv C-$	$CH_3C\equiv CCH_2CH_2CH_2CH_2CH_3$
Alcoli	$R-OH$	$CH_3CH_2CH_2CH_2OH$
Etere	$R-O-R$	$CH_3-O-CH_2CH_2CH_3$
Ammina	$R-NH_2$	$CH_3CH_2CH_2-NH_2$
Aldeide	$\begin{array}{c} O \\ \\ R-C-H \end{array}$	$\begin{array}{c} O \\ \\ CH_3CH_2CH_2C-H \end{array}$
Chetone	$\begin{array}{c} O \\ \\ R-C-R \end{array}$	$\begin{array}{c} O \\ \\ CH_3CH_2CCH_2CH_2CH_3 \end{array}$
Acido carbossilico	$\begin{array}{c} O \\ \\ R-C-OH \end{array}$	$\begin{array}{c} O \\ \\ CH_3CH_2CH_2C-OH \end{array}$
Estere	$\begin{array}{c} O \\ \\ R-C-OR \end{array}$	$\begin{array}{c} O \\ \\ CH_3CH_2CH_2C-OCH_3 \end{array}$
Amide	$\begin{array}{c} O \\ \\ R-C-NH_2 \end{array}$	$\begin{array}{c} O \\ \\ CH_3CH_2CH_2C-NH_2 \end{array}$
Arene	$Ar-H^d$	

Polimeri

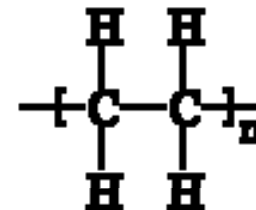
La parola “polimero” deriva dal greco = molte parti

Macromolecole: sostanze ad altissimo peso molecolare che hanno la stessa costituzione delle molecole semplici (*monomeri*) che le originano

1. Monomero
2. Unità monomerica
3. Unità ripetente
4. Grado di polimerizzazione

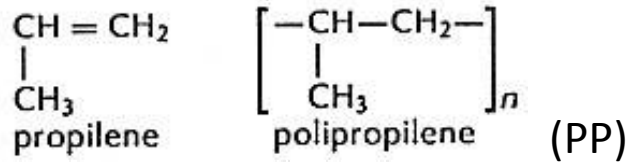


Etilene

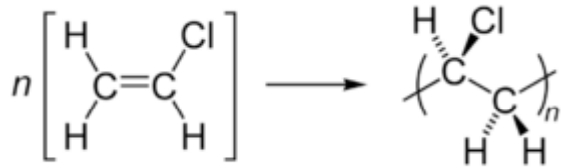


poli etilene

1. Naturali: cellulosa, amido, caseina, ecc.
2. Sintetici: prefisso “poli” al nome del monomero o dell’unità ripetente (polietilene, polipropilene, polistirene, cloruro di polivinile, ecc.). (PC, PE, PET, PP, PS, PVC, ecc.)

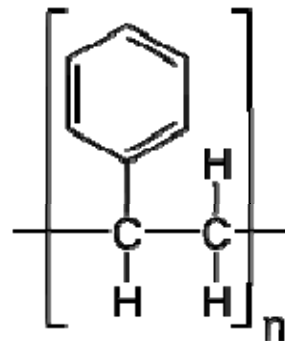


Metile: $-\text{CH}_3$



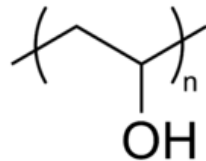
Cloro: $-\text{Cl}$

Polivinilcloruro (PVC)



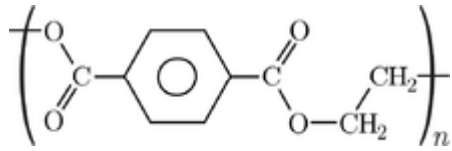
Benzene, fenile: $-\text{C}_6\text{H}_6$

Polistirene (PS)

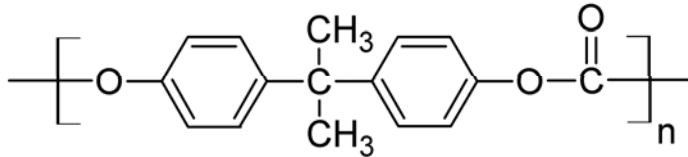


ossidriile: $-\text{OH}$

Polivinilalcol (PVA)

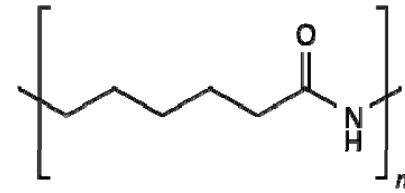


polietilentereftalato (PET)

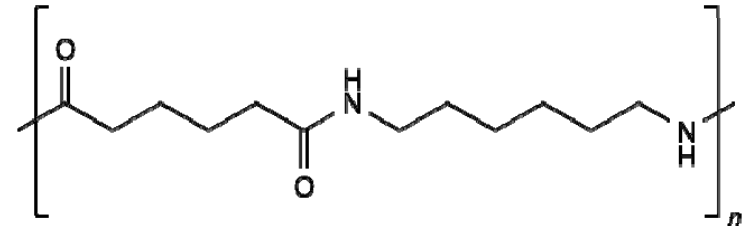


policarbonato (PC)

→ Addizione vs condensazione

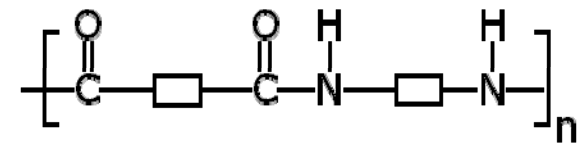
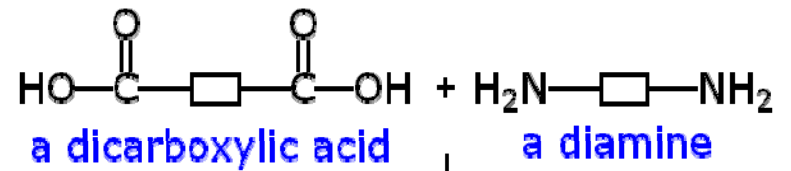


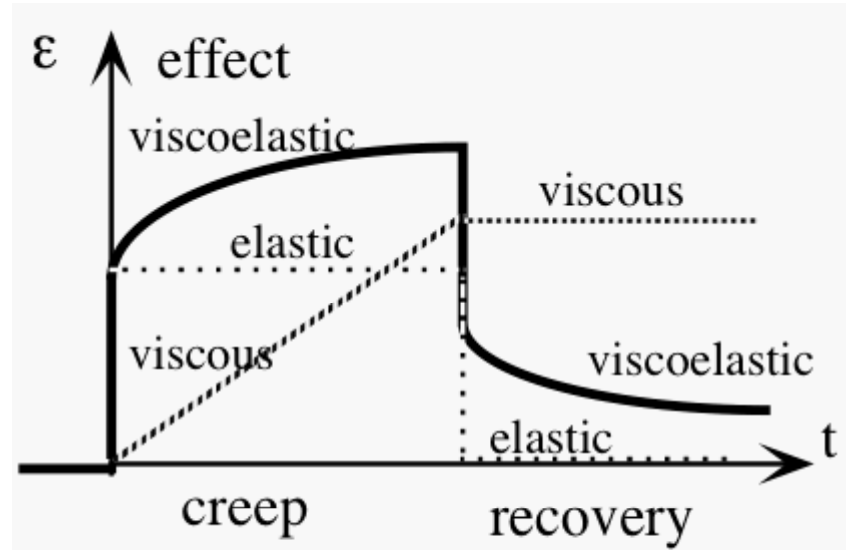
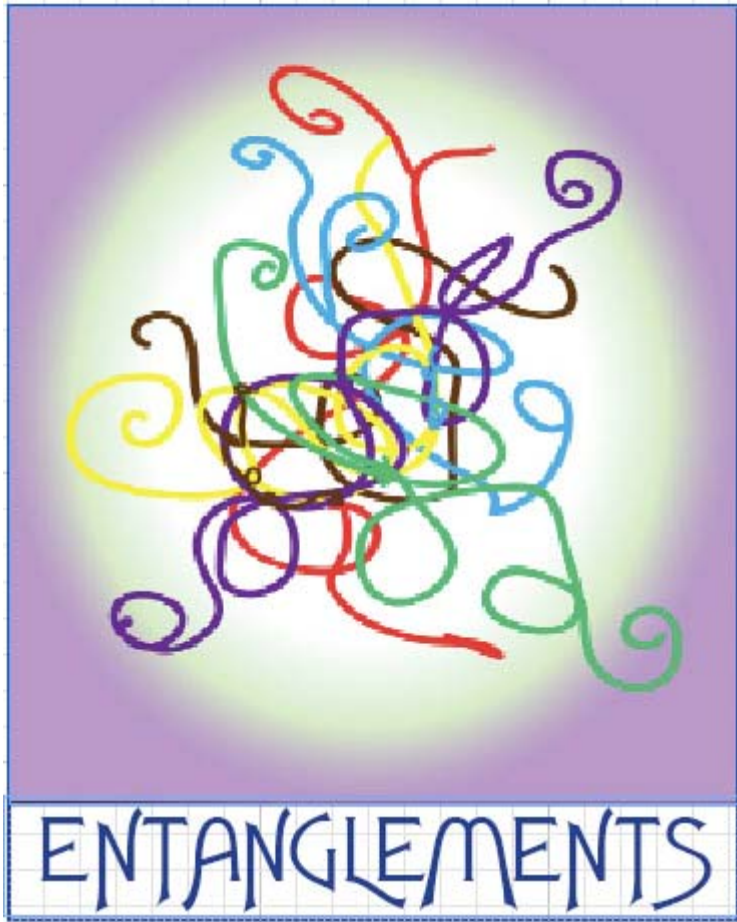
Nylon 6



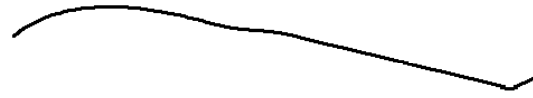
Nylon 6,6

Nylon, poliammide (PA)



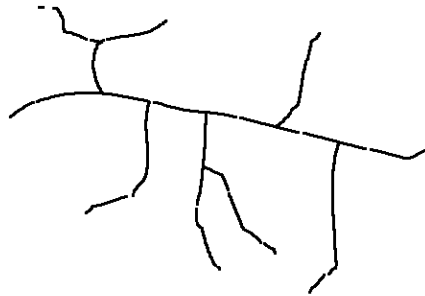


- Lineari



a linear polymer

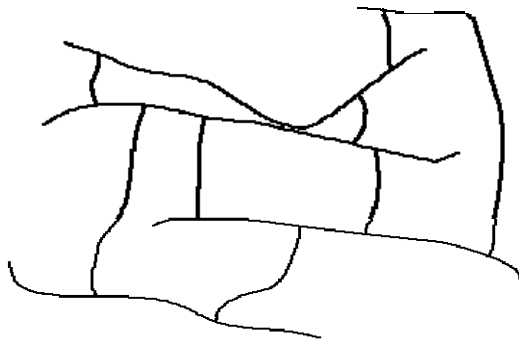
- Ramificati



a branched polymer

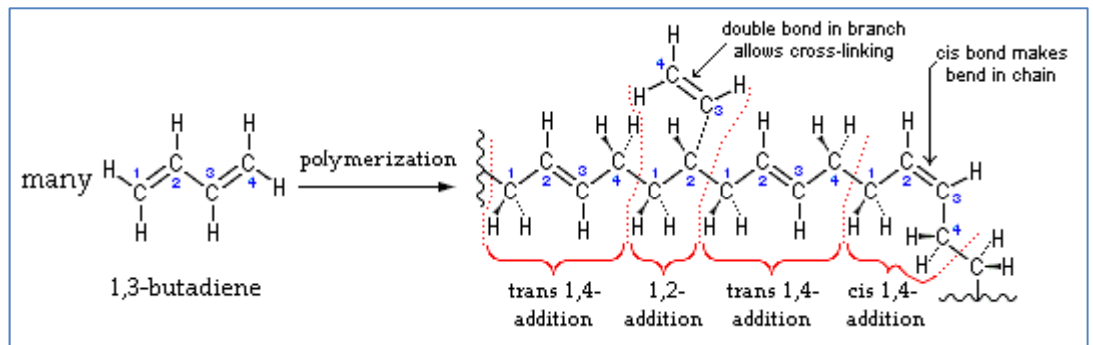
- reticolati

Elastomeri, gomme

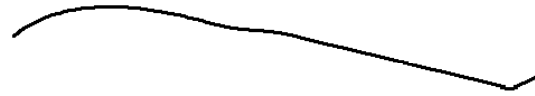


a crosslinked polymer

Es: butadiene

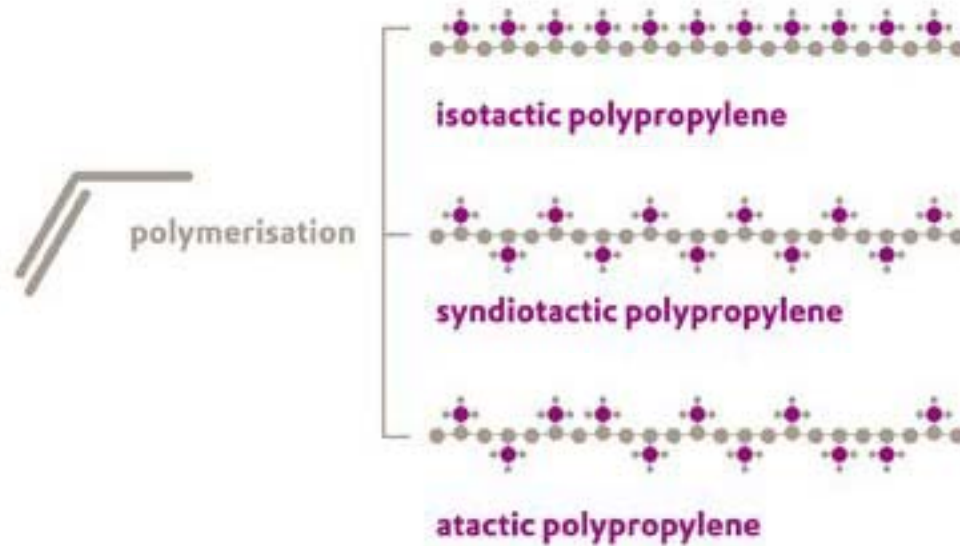


- Lineari



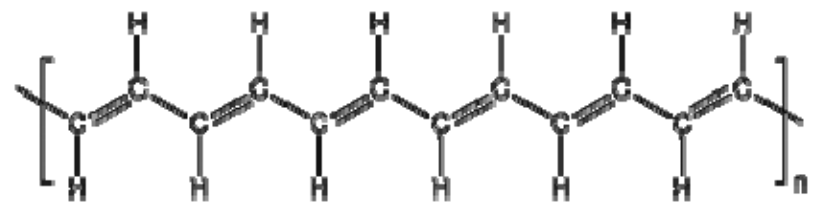
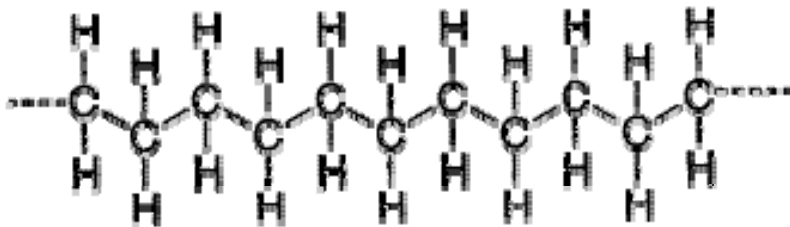
a linear polymer

Regolarita':
Giulio Natta e "l'invenzione della plastica"



...una questione di urti efficaci...

Polietilene e Poliacetilene: quale differenza?



... i “polimeri conduttori”



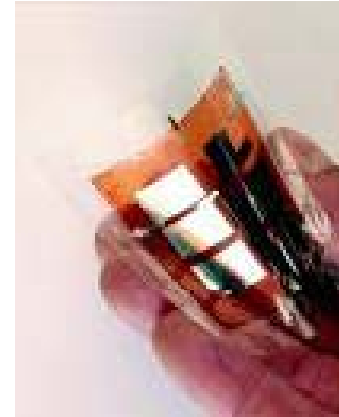
“Energia green da materiale green”

Fotovoltaico organico

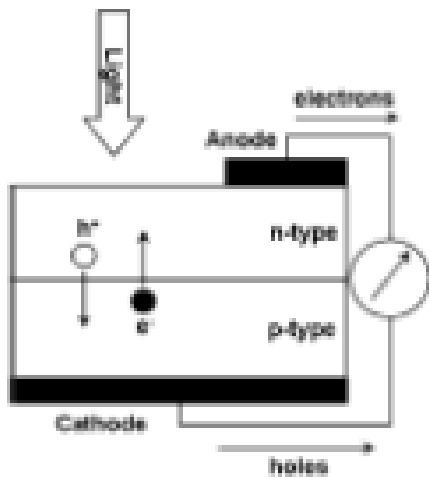


“Energia green da materiale green”

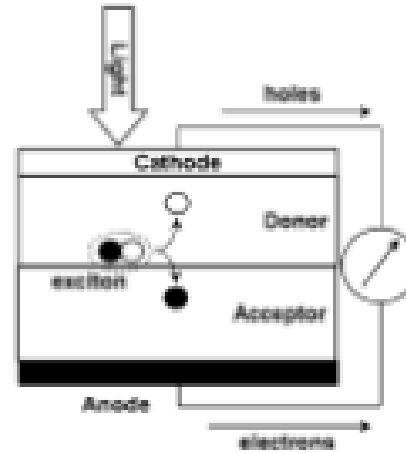
Fotovoltaico organico



Conventional Solar Cell

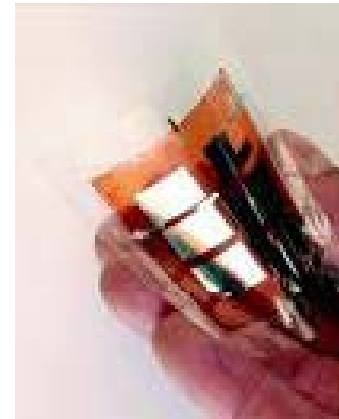


Organic Heterojunction Solar Cell

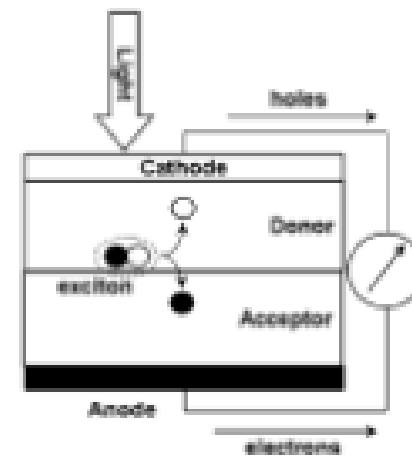


“Energia green da materiale green”

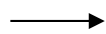
Fotovoltaico organico



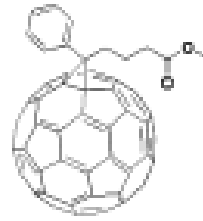
Organic Heterojunction Solar Cell



Examples:
acceptors

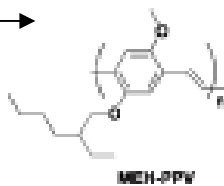


C₆₀

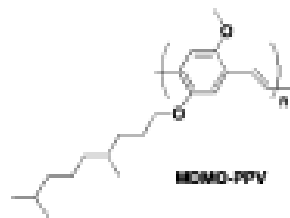


PCBM

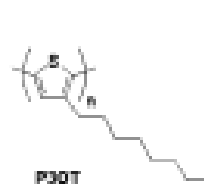
donors



MEH-PPV



MDMO-PPV



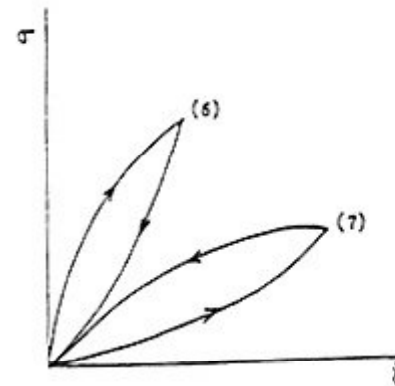
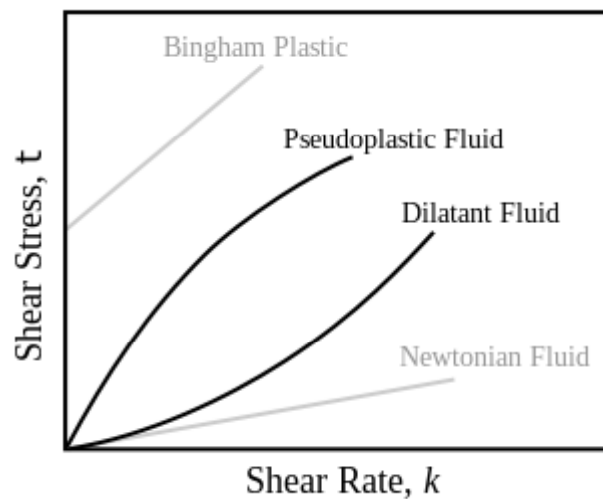
P3OT

“Can you walk on water?”

<https://www.youtube.com/watch?v=D-wxnID2q4A>

I fluidi non newtoniani

Non-newtoniani: non si ha proporzionalita' diretta tra lo sforzo e la velocita' di deformazione
(newtoniani: proporzionalita' diretta, costante di proporzionalita' e' la viscosita')



Tixotropico: applicando sforzo, diventa piu fluido

→ dentifricio, miele, ...

Reopéctico: applicando sforzo, diventa meno fluido

→ piscina malese, acqua e fecola di patate, ...

- Polimeri
- Gel: sistema, spesso polimerico, con reticolazioni (chimiche o fisiche)
- Sospensioni (al limite di solido impregnato) , colloidi